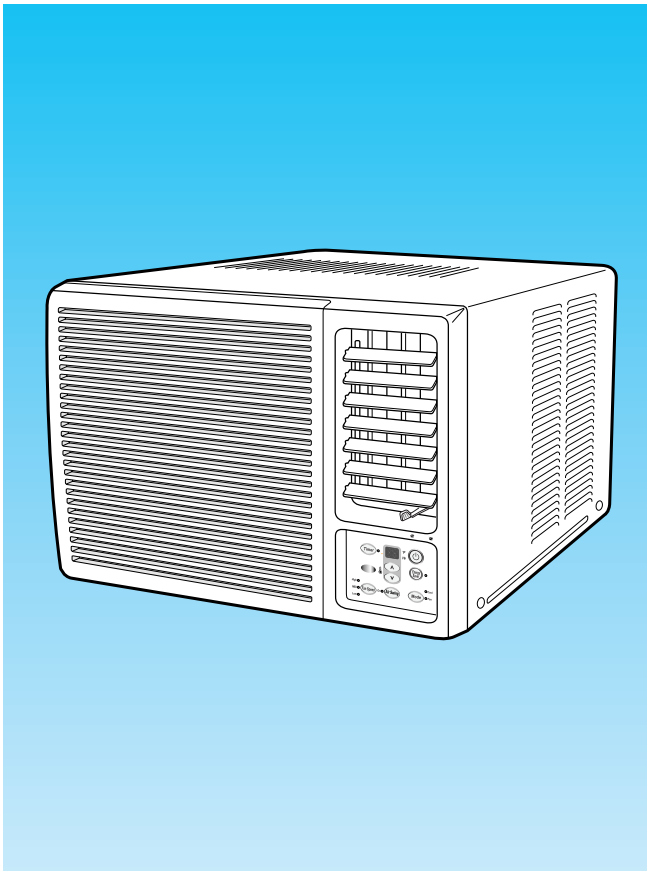
SAMSUNG

ROOM AIR CONDITIONER

AW0690
AW0790
AW0890
AW1090
AW1290
AW1890

SERVICE Manual

AIR CONDITIONER



CONTENTS

1. Precautions
2. Product Specifications
3. Installation and Operating Instructions
4. Disassembly and Reassembly
5. Troubleshooting
6. Exploded Views and Parts List
7. Block Diagram
8. PCB Diagram
9. Wiring Diagrams

SAM0129

1. Precautions

1. Warning: Prior to repair, disconnect the power cord from the circuit breaker.

2. Use proper parts: Use only exact replacement parts. (Also, we recommend replacing parts rather than repairing them.)

3. Use the proper tools: Use the proper tools and test equipment, and know how to use equipment may cause problems later-intermittent contact, for example.

4. Power Cord: Prior to repair, check the power cord and replace it if necessary.

5. Avoid using an extension cord, and avoid tapping into a power cord. This practice may result in malfunction or fire.

6. After completing repairs and reassembly, check the insulation resistance, Procedure: Prior to applying power, measure the resistance between the power cord and the ground terminal. The resistance must be greater than 30 megohms.

7. Make sure that the grounds are adequate.

8. Make sure that the installation conditions are satisfactory. Relocate the unit if necessary.

9. Keep children away from the unit while it is being repaired.

10. Be sure to clean the unit and its surrounding area.

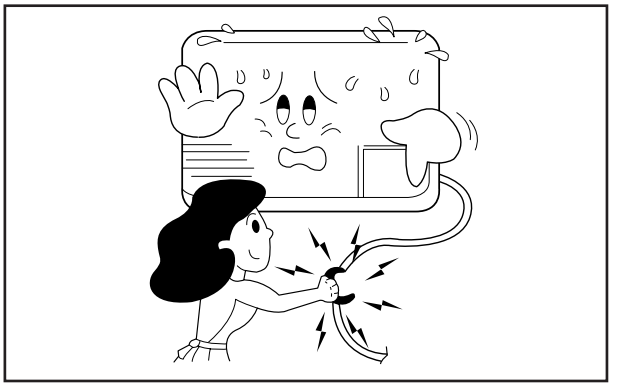


Fig. 1-1 Avoid Dangerous Contact

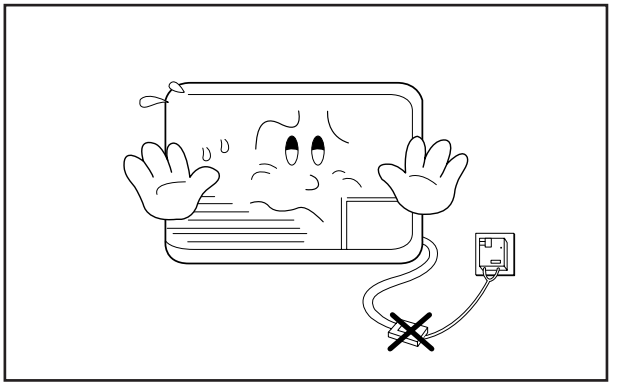


Fig. 1-2 No Tapping and No Extension Cords

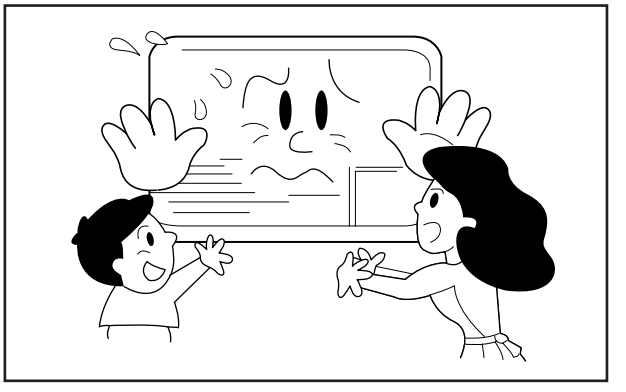


Fig. 1-3 No Kids Nearby!

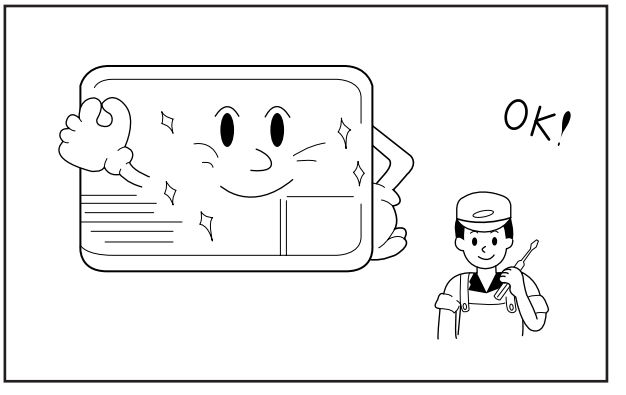


Fig. 1-4 Clean the Unit

MEMO

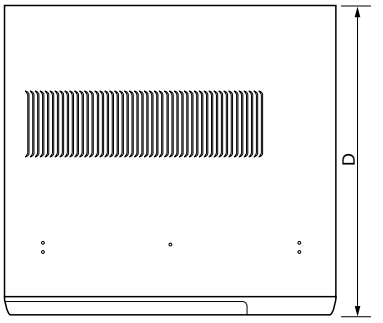
2. Product Specifications

2-1 Table

Item	Unit of Measure	AW0690	AW0790	AW0890	AW1090	AW1290	AW1890
Type	-	Window					
Dimensions: (Width X Height X Depth)	mm (inch)	520 x 345 x 485			600 x 394 x 595	600 x 395 x 595	660 x 425 x 730
Packing Size (Width X Height X Depth)	mm (inch)	571 x 454 x 546			728 x 459 x 647		723 x 555 x 798
Voltage:	Volt	115V					230/208V
Phase	-	Single					
Frequency	Hz	60					
Operating Current	A	5.6	6.7	7.4	9.2	12.0	8.5/9.1
Power Consumption	W	600	715	800	1,000	1,330	1,800/1,750
Refrigerant Type	FREON	R-22					
Refrigerant Charge	g	380	470	500	600	800	1,090
Cooling Capacity	BTU/h	6,000	7,000	8,000	10,000	12,000	18,000/17,500
EER	BTU/HW	10.0	9.8	10.0	10.0	9.0	10.0/10.0
Net Weight	kg	29	29	29	45	45	61
Condenser	Row x Col	2 x 15	3 x 15	3 x 15	3 x 17	3 x 14	3 x 16
Condenser Fan	Type	Propeller-Fan					
Evaporator	Row x Col	2 x 14		3 x 14	2 x 14	2 x 14	3 x 15
Evaporator Fan	Type	Blower					
Fan Motor	-	IC-9630SWD6C	IC-9630SWD6E	IC-9630SWD6E	AFS090ZREA	AMAFS-100ZREB	AFS140ZTEA
Compressor	-	44A062HS1EB	44A072HW1EB	44080HS1EB	44B102HS1EF	44B124HW1EG(4)	48B175IV1EH
Overload Protect	-	MRA12040-12008	MRA98706-12008	MRA12083-12008	MRA12109-12007	MRA98693-12007	MRA12107-12007
Compressor Capacitor	µF/ VAC	30/5µF 370VAC (Dual Type)	25/5µF 370VAC (Dual Type)	35/6µF 370VAC (Dual Type)	40/15µF 370VAC (Dual Type)	40/15µF 370VAC (Dual Type)	35/6µF 450VAC (Dual Type)
Fan Motor Capacitor	µF/ VAC						
Fan Speed Control	-	HIGH, MID, LOW					

2-2 Dimensions

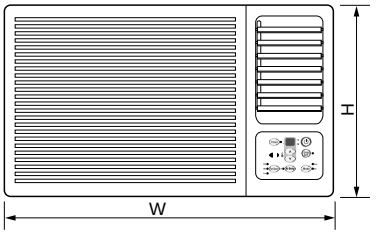
2-2-1 Main Unit



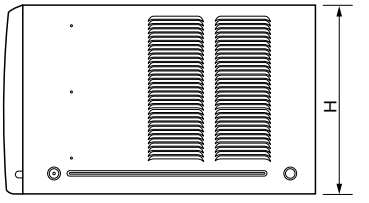
Unit : mm

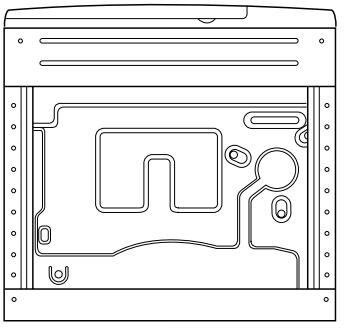
Model	W	H	D
AW0690	520	345	485
AW0790	520	345	485
AW0890	520	345	485
AW1090	600	394	595
AW1290	600	395	595
AW1890	660	425	730

Front view

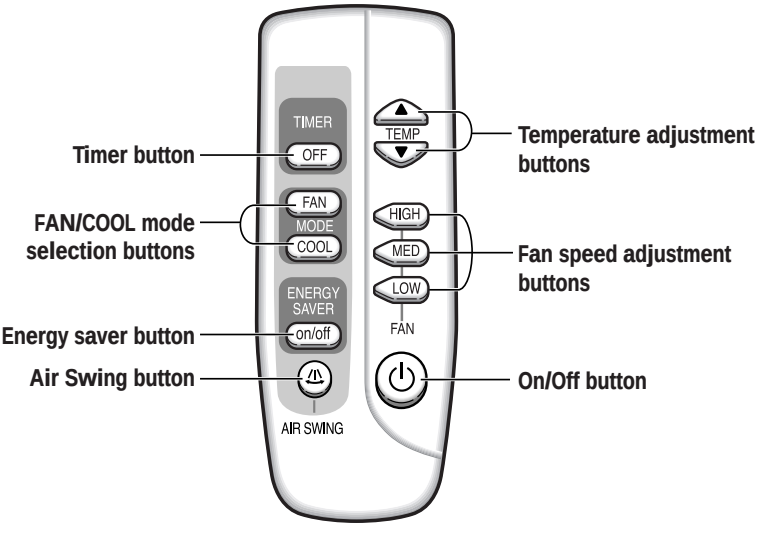


Side view





2-2-2 Remote Control



3. Installation and Operating Instructions

3-1 Installation

* When selecting the area for installing the unit, be sure to obtain approval of the customer.

1. Make sure that you install the unit in an area that provides good ventilation.
   The air conditioner must not be blocked by any obstacle affecting the air flow near the air inlet and air outlet.

2. Make sure that you install the unit in an area which can endure the weight and vibration of the unit.

3. Make sure that you install the unit away from heat or vapor.

4. Make sure that you install the unit in an area where the cooled air can be evenly spread in a room.

5. Make sure that you install the unit in an area away from TVs, audio units, cordless phones, fluorescent lighting fixtures and other electrical appliances.
   (obtain a clearance of at least one meter)

6. Make sure that you install the unit in an area which provides easy drainage for condensed water.

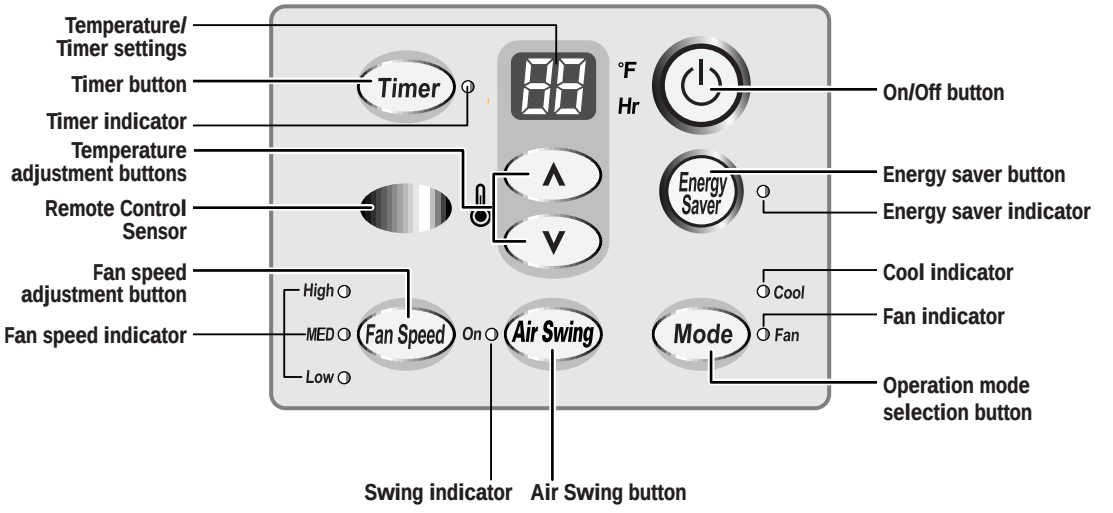
7. Make sure that you install the unit in an area not exposed to rain or direct sunlight.
   (Install a separate sunblind if exposed to direct sunlight.)

8. Do not install the unit in an area subjected to noise or vibration amplification which may affect your neighbor.
   (Fix the unit firmly if mounted in a high place.)

Caution:

Do not use the air conditioner in such areas as a greasy area(including machine oil),
saline area(sea side), or sulphuric area(hot spring). When using the air conditioner in these areas, special maintenance is required. Contact your local dealer or our service center for advice.

3-2 Function Description



3-2-1 Cooling operation mode

The compressor is turned on and off according to the ambient temperature and set temperature.

1. Compressor on and off control
   - Compressor on and off control according to the ambient temperature.
     * The compressor is turned off when "ambient temperature = set temperature "
     * The compressor is turned on when "ambient temperature = set temperature +1˚C"
2. Default value after power reset ➔ set temperature = 18˚C, 75˚F
   FAN SPEED = HIGH
3. Set temperature indicating (setting) range : 1˚C interval from 18˚C to 30˚C.
   1˚F interval from 64˚F to 86˚F.

3-2-2 Fan operation mode

1. If "Fan operation mode" signal is received from remocon.
   ➔ the compressor is immediately turned off and only fan motor is operated at set blowing speed.
   ➔ it changes such as "HIGH ➔ MED ➔ LOW"(if Fan speed is selected).
2. The initial FAN speed is set to "HIGH".
3. The set temperature can not be indicated and set.

3-2-3 Energy Saver Operation

- If the compressor turn off at the cooling operation, the fan motor turn off after operating during the fixation time only, and operation that save energy by turn off the fan motor continuously before the condition of the compressor on.
- The fan motor is not operated at flow wind operation.

1. Energy Saver operation specification at the cooling operation
   1) Fan motor control in compressor on : operate with setting wind speed
   2) Fan motor control in compressor off : After compressor off, the fan motor is operated breeze for 2 minutes and then it turn off.
   3) After the fan motor off, the compressor and fan motor is operated normally when the compressor on.

3-2-4 LED display indication in case of error detection

ERROR OPERATION	7-SEG LED DISPLAY (LE01)
ROOM THERMISTOR (OPEN OR SHORT)	E1 displayed

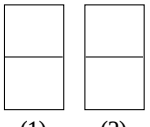
1. Set operation in case of error occurrence.
   - Malfunction of each temperature sensor (open, short)
     - Error mode display, warning sound.
     - The operation status is off.

3-2-5 Panel key operation

Key description / Key name	Key operational function	Key Type
Operation/Stop	• Start and stop of operation - Once ON=start of operation, again ON=stop of operation - No operation continuously.	TACT
Function selection	• Change of the operation mode(in case of the model option cooling only) - It is selected with "COOL → FAN"(default=COOL) for each once turn on. - In case that the operation off, it is treated invalidity. - No operation continuously.	TACT
Flow wind selection	• Set the fan motor speed - It is selected with "HIGH → MED → LOW → HIGH" for each once turn on. - In case that the operation off, it is treated invalidity. - No operation continuously.	TACT
Temperature adjustment (increase) ∧	• It is increased the desired temperature that displayed now. - The desired temperature is increased for each pressing with 1°… unit. (Increase:18˚C → 19˚C → .. → 21˚C → .. → 23˚C → .. → 29˚C → 30˚C 64˚F → 65˚F → .. → 70˚F → .. → 80˚F → .. → 85˚F → 86˚F) - In case that the desired temperature is 30˚C, 86˚F…, if the "increase key is pressed, it is not increased. If you press the "Increase/Decrease" key of the remote controller, it occurs the alarm horn at above status. - It is possible a single shot and continue operation. - In case of the operation off and flow wind operation, it is treated invalidity.	TACT
Temperature adjustment (decrease) ∨	• It is decreased the desired temperature that displayed now. - The desired temperature is decreased for each pressing with 1˚... unit. (Decrease:30˚C → 29˚C → .. → 23˚C → .. → 21˚C → .. → 19˚C → 18˚C 86˚F → 85˚F → .. → 80˚F → .. → 70˚F → .. → 65˚F → 64˚F) - In case that the desired temperature is 18˚C, 64˚F…, if the "decrease key is pressed, it is not decreased. If you press the "Increase/Decrease" key of the remote controller, it occurs the alarm horn at above status. - t is possible a single shot and continue operation. - In case of the operation off and flow wind operation, it is treated invalidity.	TACT

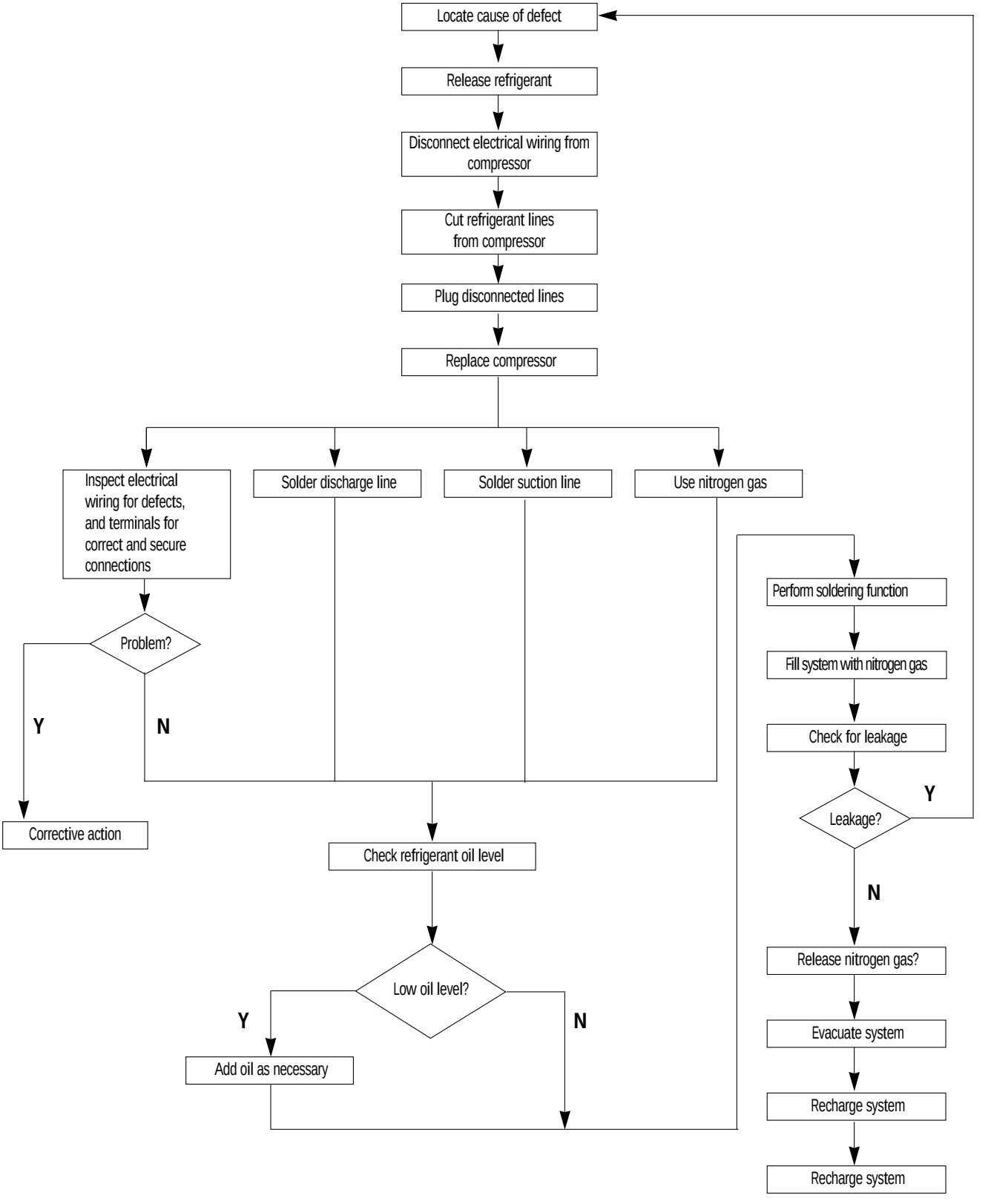
Key description / Key name	Key operational function	Key Type
Left/right swing	Operation and stop of the left/right swing - Once key on=left/right swing on, key on=left/right swing off again - No operation continuously. - In case that the fan motor off(saving energy operation), left/right swing motor is not operated(It is cleared in fan motor on.)	TACT
Off timer	Setting the OFF Timer. - In status of non-reservation, stand by the reservation set for once when key on. : "--" display In status of the reservation setting stand by, it is not turn on the key within 10 second, the reservation is cleared. - In status of the reservation setting stand by within 10 second, the reservation setting time is increased when key on.(-- → 1Hr → 2Hr → .. → 23Hr → 24Hr) After setting the reservation time, if it is not turn on the key within 10 second, it is reserved the Off timer with setting reservation time. - For 24Hr, stand by the reservation set for once when key on. : "--" display - It is possible a single shot and continue operation. - In case of the operation off, it is treated invalidity.	TACT
Energy Save	Operation and stop of the saving energy operation - Once key on=saving operation on, key on=saving energy off again - No operation continuously - In case of the operation off, it is treated invalidity.	TACT

3-2-6 LED lamp operation specifications

LAMP name	Operations specifications
COOL	The mode is set to "COOL" → ON Others → OFF
FAN	The mode is set to "FAN" → ON Others → OFF
˚C	The set temperature is displayed Others → OFF
HIGH	The mode is set to "HIGH" → ON Others → OFF
MID	The mode is set to "MID" → ON Others → OFF
LOW	The mode is set to "LOW" → ON Others → OFF
AIR SWING	During setting of the "SWING MODE" is set to "SWING" → ON Others → OFF
Hr	During setting of the convenient reserve (OFF TIMER) time → blinking After setting of the convenient reserve (OFF TIMER) time → ON Others → OFF
TIMER	Stand for /during / After setting of Convenient reserve (OFF TIMER) time → ON Others → OFF
ENERGY SAVER	Energy Saving operation → ON Others → ON
 (1) (2)	In case of (set) temperature display → NO. (1) 7 seg. LED display indicates temperature of the tens digit → NO. (2) 7 seg. LED display indicates temperature of the units digit In case of time (OFF TIMER) display → NO. (1) 7 seg. LED display indicates time of the tens digit → NO. (2) 7 seg. LED display indicates time of the units digit

4. Disassembly and Reassembly

4-1 Compressor Replacement Flow Chart



4-2 Checking the oil

Fill the transparent container with 10cc of oil, and then conduct the test.

4-2-1 Oil quality

Refrigerant Cycle	Oil Condition		Remarks
	Color	Odor	
Normal	Light Yellow	No Odor	Return with the system
Over-heated	Brown	-	Oil Change
Compressor damage	Dark brown		Oil Change

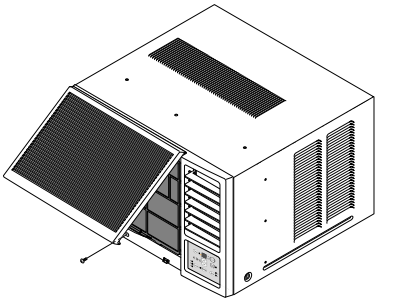
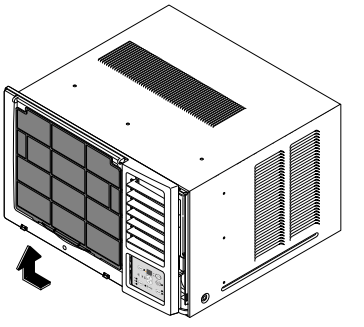
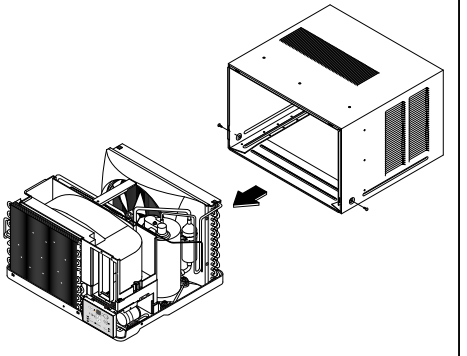
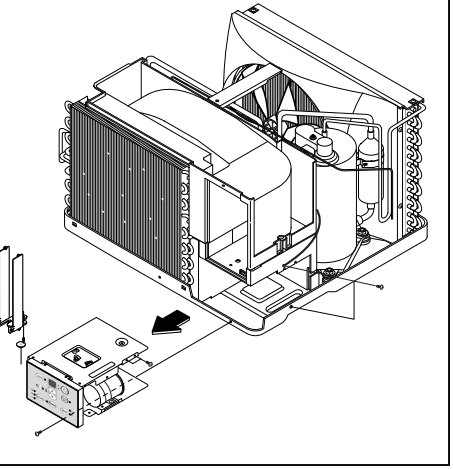
4-2-2 Replacing and refilling the refrigerant oil

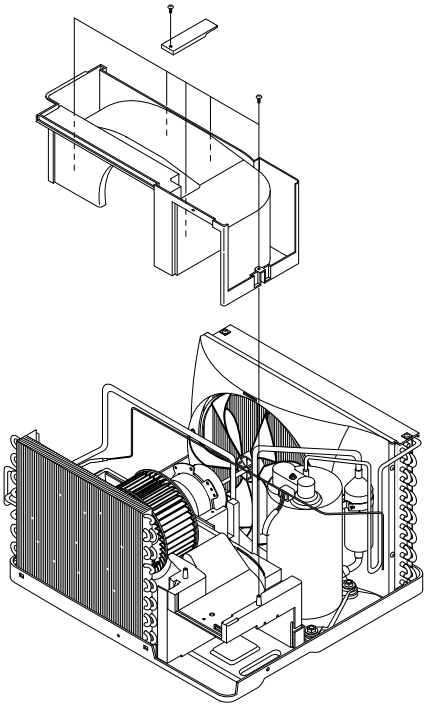
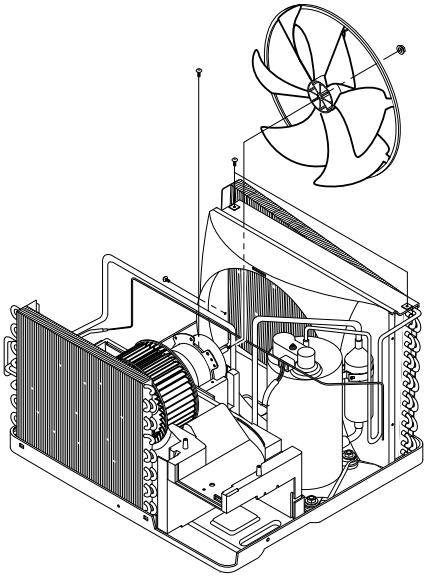
1. Replacing the compressor - Do not fill the system with oil as the compressor is already charged.
2. Replacing the condenser - Refill 50cc.
3. Replacing the evaporator - Refill 50cc.
4. Replacing the refrigerant - Refill 30cc.
5. The high pressure side is filled up with oil after the vacuum is completed.
6. When the refrigerant leaks, it is generally not necessary to refill the oil if the leakage is not severe.

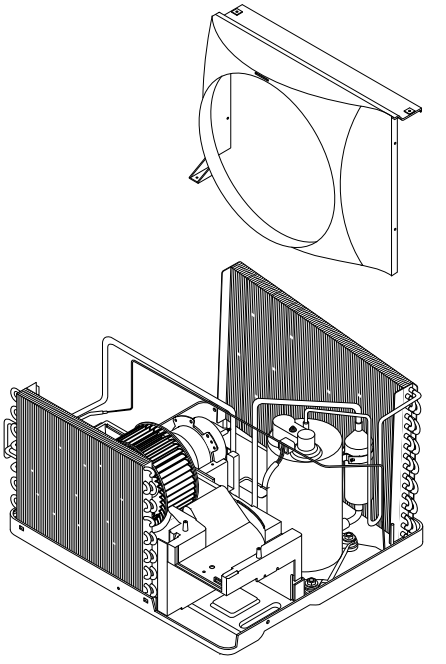
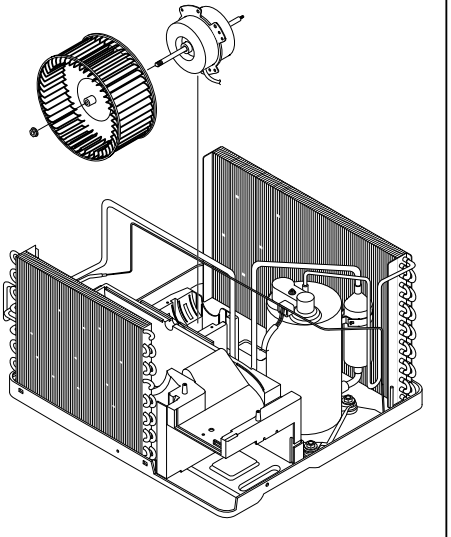
4-3 Disassembly and Reassembly Procedure

4-3-1 AW0690/AW0790/AW0890

Stop operating the air conditioner, and pull out the power cord before repair.

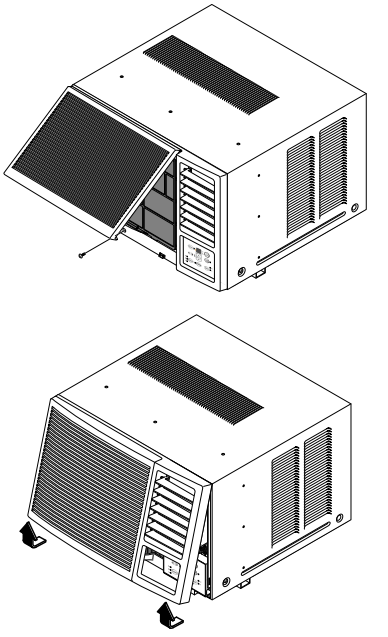
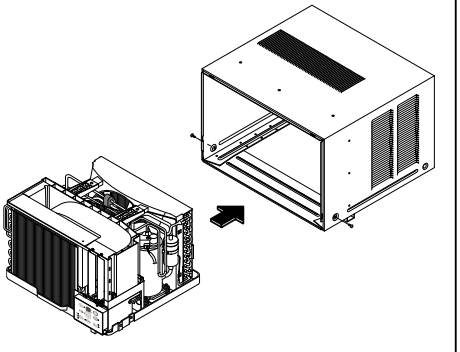
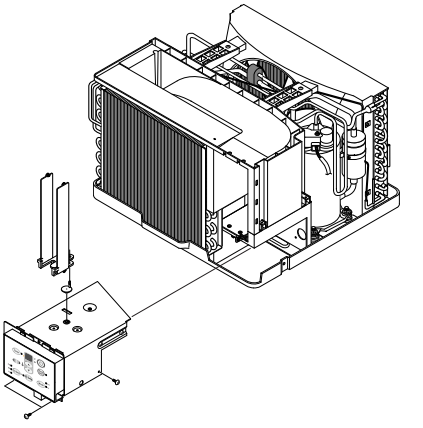
No.	Part name	Procedures	Remarks
①	Ass'y Grill	1. Pull the panel front and remove the screw on the grille	
		2. Push the grille left side and pull up	
②	Ass'y Cabinet	1. Remove the two screws both side cabinet. 2. Pull the front both side, and remove the unit from the cabinet.	
③	Ass'y Control	1. Remove the blade V and arm blade 2. Remove 2 screws, and 2 earth wire screws. 3. Remove two lead wire assemblies. 4. Take out the control box forward.	

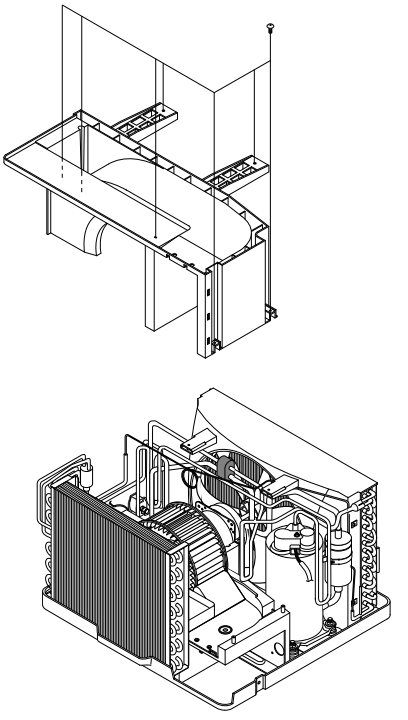
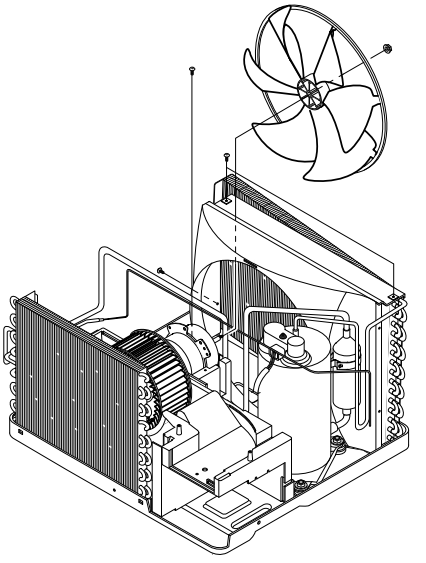
No.	Part name	Procedures	Remarks
④	Frame Up	1. Remove 6 screws on the Frame up and remove the Frame up and the reinf from case cond.	
⑤	Case Cond & Propeller Fan	1. Remove two screws on the bottom side, and 4 screws on the case cond. 2. Pull up the case cond and separate the cond case from the cond. 3. Remove the nut flange, and remove the propeller fan	

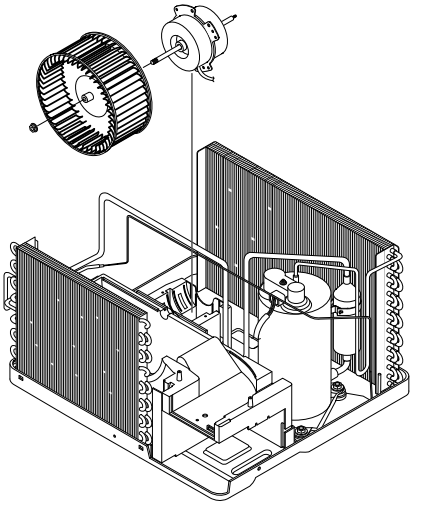
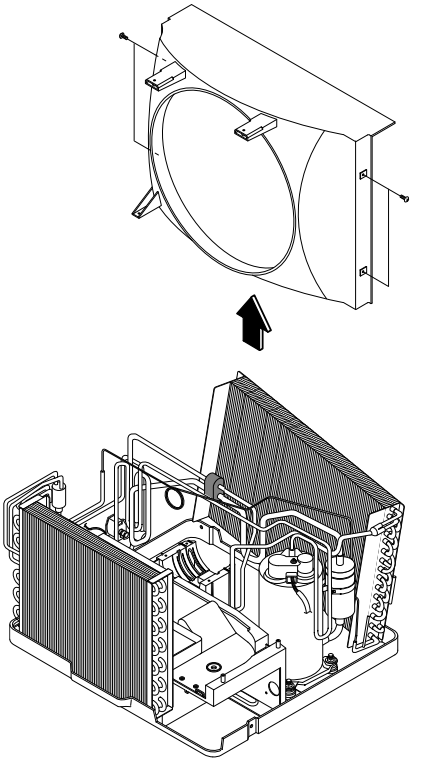
No.	Part name	Procedures	Remarks
⑥	Cond Casing	1. Remove the cond casing	
⑦	Blower & Motor	1. Move the motor & blower toward the evap, and lift up the motor & blower from the frame low.	

4-3-2 AW1090/AW1290

Stop operating the air conditioner, and pull out the power cord before repair.

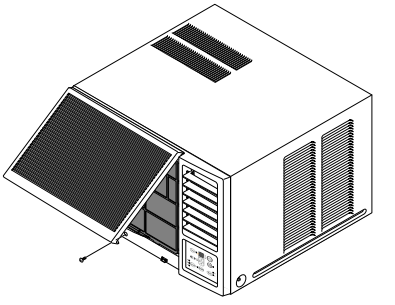
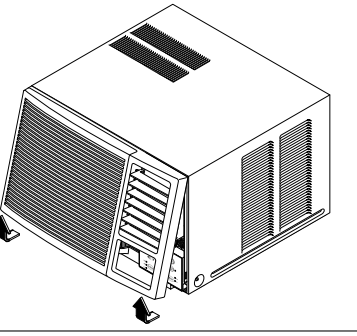
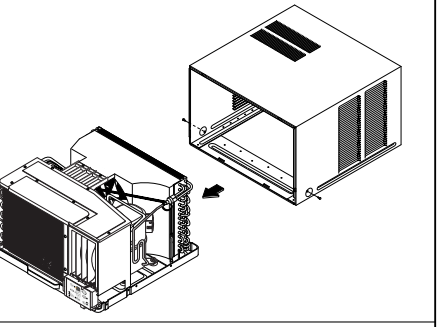
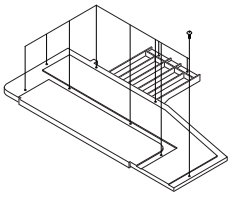
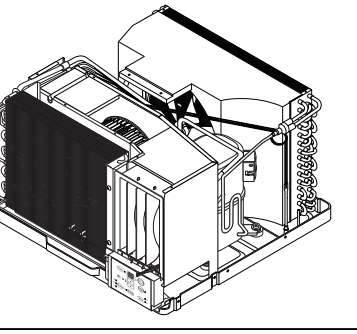
No.	Part name	Procedures	Remarks
①	Ass'y Grill	1. Pull the panel front and remove the screw on the grille 2. Hold the lower part of the grill with two hands while pressing down on both sides of the lower part of the cabinet, pull it forward by about 30, and then lift it up for removal. 3. Pull out the Seal-cabi front between Base pan can Cabinet	
②	Ass'y Cabinet	1. Remove the screws on both sides of the cabinet to disconnect the cabinet and frame. 2. Pull the handle on the front side of the bottom, and remove the unit from the cabinet.	
③	Ass'y Control	1. Remove 6 screws, and earth wire screw. 2. Remove three lead wire assemblies. 3. Remove the blade V and arm blade. 4. Take out the control box forward.	

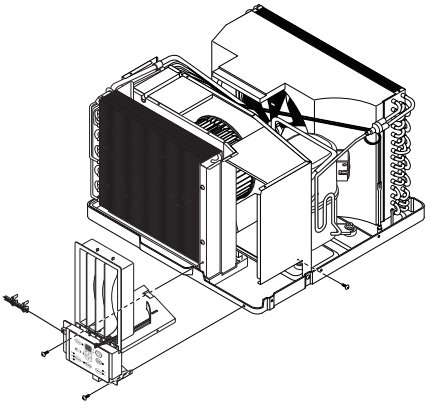
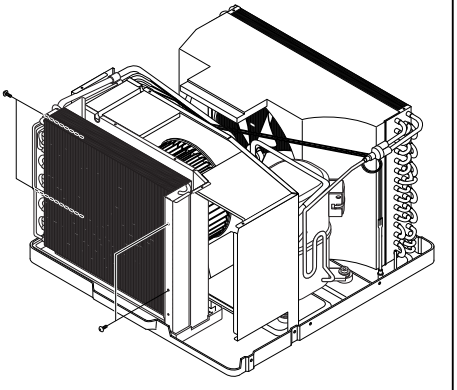
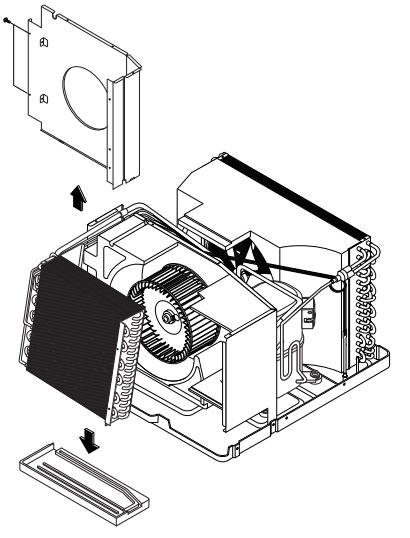
No.	Part name	Procedures	Remarks
④	Frame Up	1. Remove 10 screws on the Frame Up.	
⑤	Case Cond & Propeller Fan	1. Remove two screws on the bottom side, and 5 screws on the case cond. 2. Remove the nut flange, and remove the propeller fan	

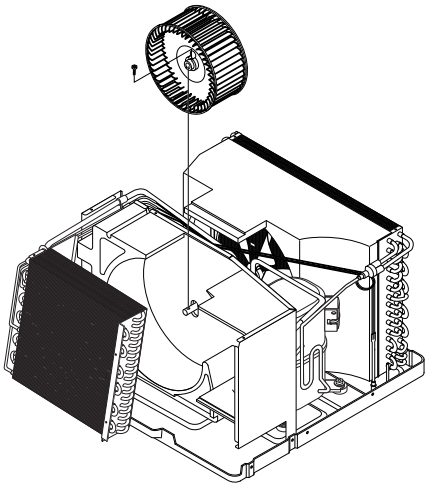
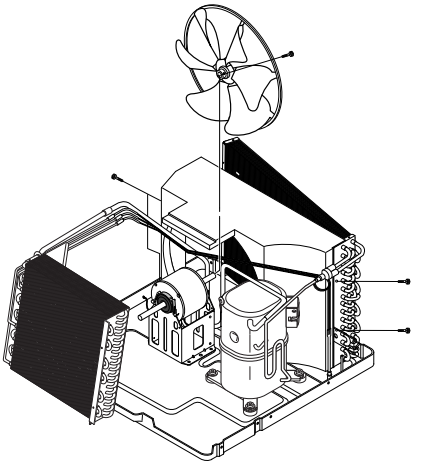
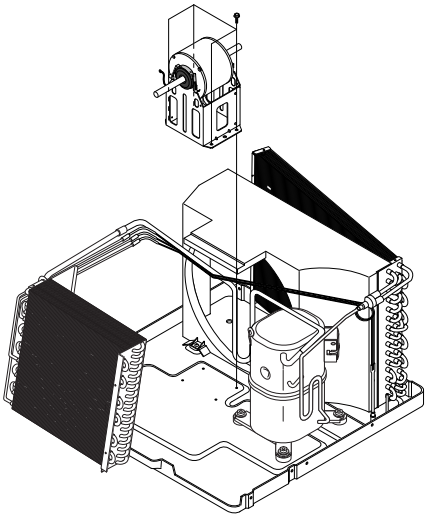
No.	Part name	Procedures	Remarks
⑥	Blower & Motor	1. Remove two screws on the clip motor, and remove the clip motor. 2. Move the motor & blower toward the evap, and lift up the motor & blower from the frame low.	
⑦	Cond Casing	1. Remove the cond casing	

4-3-3 AW1890

Stop operating the air conditioner, and pull out the power cord before repair.

No.	Part name	Procedures	Remarks
①	Ass'y Grille	1. Pull the panel front and remove the screw on the grille.	
		2. Hold the lower part of grill with two hands while pressing down on both sides of the lower part of the cabinet, pull it forward by about 30, and the then lift it up for removal.	
②	Ass'y Cabinet	1. Remove the screws on both sides of the cabinet to disconnect the cabinet and frame. 2. Pull the handle on the front side of the bottom, and remove the unit from the cabinet.	
③	Ass'y Control	1. Remove 10 screws, on the evap cover and earth wire screw.	 

No.	Part name	Procedures	Remarks
		2. Remove 3 screw on the control box and two lead wire assemblies. 3. Take out the control box forward.	
④	Ass'y - Evaporator	1. Remove for screws on the left and right side of the evaporator.	
⑤	Plate - Evap Casing	1. Lift up the evaporator, and remove the tray drain. 2. Remove two screws on the left side of the plate evap casing.	

No.	Part name	Procedures	Remarks
⑥	Blower	1. Loosen the hexagon nut, and remove the blower.	
⑦	Propeller Fan	1. Remove two screws on the bottom side, and 5 screws on the case cond. 2. Loosen the hexagon nut, and remove the fan	
⑧	Motor Supporter & Motor	1. Remove four hexagon nuts on the base pan. 2. Move the motor - assembly toward the condenser, and lift up the motor - assembly from the frame. 3. Remove the clips on both sides carefully using the (-) driver.	

MEMO

5. Troubleshooting

Check the basic checkpoints first to determine whether it is machine trouble or a problem in the operation method. When it is not related to the basic checkpoints, perform checking in accordance with the procedures of troubleshooting by symptom.

5-1 Basic Checkpoints for Troubleshooting

1) Is the voltage of the power source appropriate ?
   - The air conditioner may not operate properly when the voltage is out of range.
2) Is the connection with the fan motor, compressor wire, and starting condenser appropriately made ?
3) The symptoms listed in the table below are not indicative of machine trouble.

Symptom	Cause and check
No operation	• Check whether there is power failure or the power plug is pulled out. • Check whether the unit is stopped as a result of completion of the sleep time. • Pull out the power plug for ten seconds, and then insert it again.
Air flows, but no cooling	• Check whether the Air filter is clogged with dust or is dirty. • Check whether the desired temperature is too high. Set the desired temperature to a lower level than the current temperature. • Check whether it is in "FAN" mode.
The remocon does not operate	• Check whether battery is completely depleted. • Check whether the battery is properly inserted. • Check whether the receiving window of the remocon for the assembly panel PCB is blinded. • Check whether the remocon is affected by jamming due to a neon sign.
No temperature setting	• Check whether the unit is in "FAN" mode. (In "FAN" mode, only the current temperature is displayed, and the desired temperature is not set.)

• Checking and Display of Fault Area

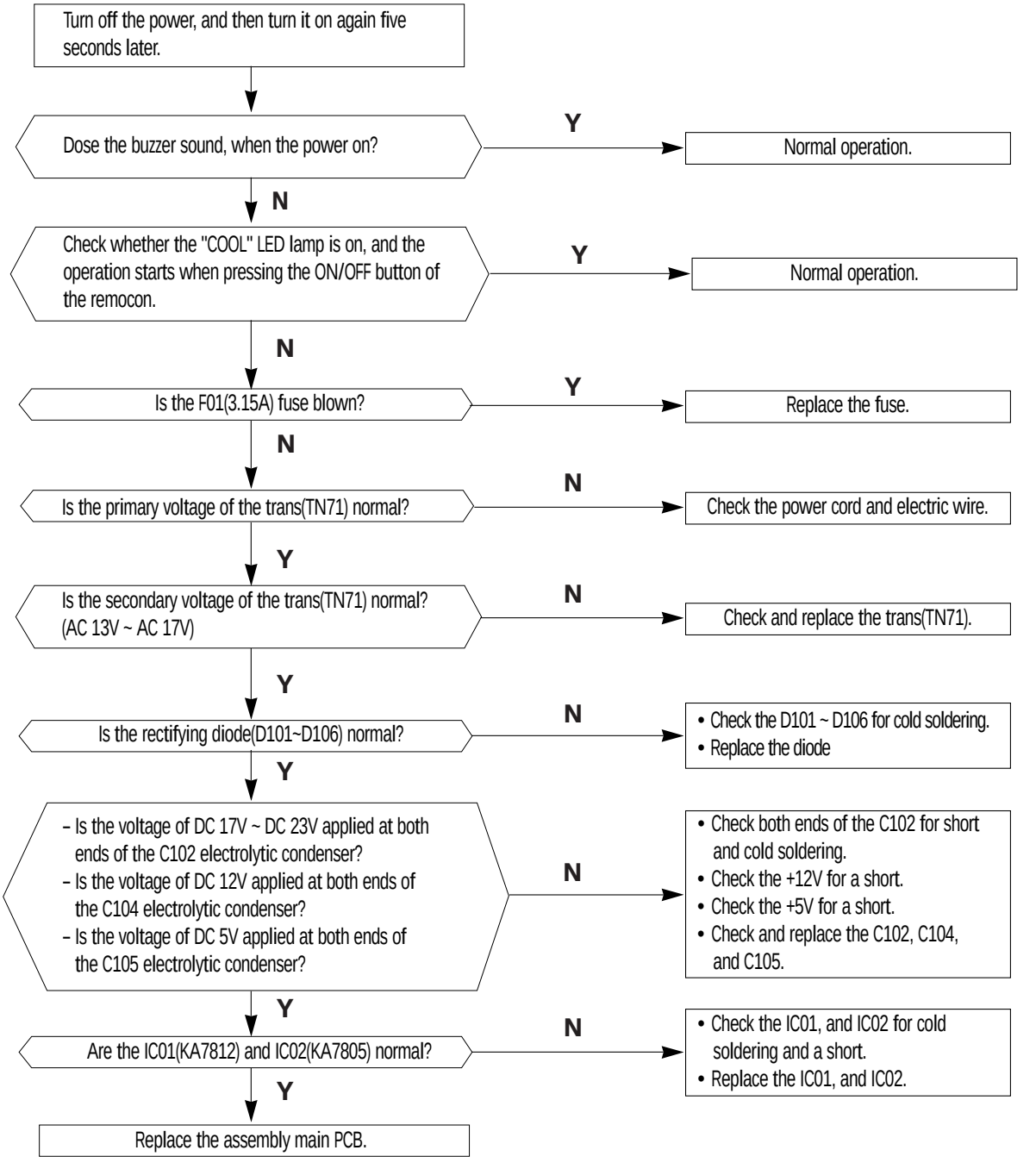
ERROR OPERATION	7-SEG LED DISPLAY (LE01)
ROOM THERMISTOR (OPEN OR SHORT)	E1 displayed

5-2 Troubleshooting by Symptom

5-2-1 No power

1) Check points

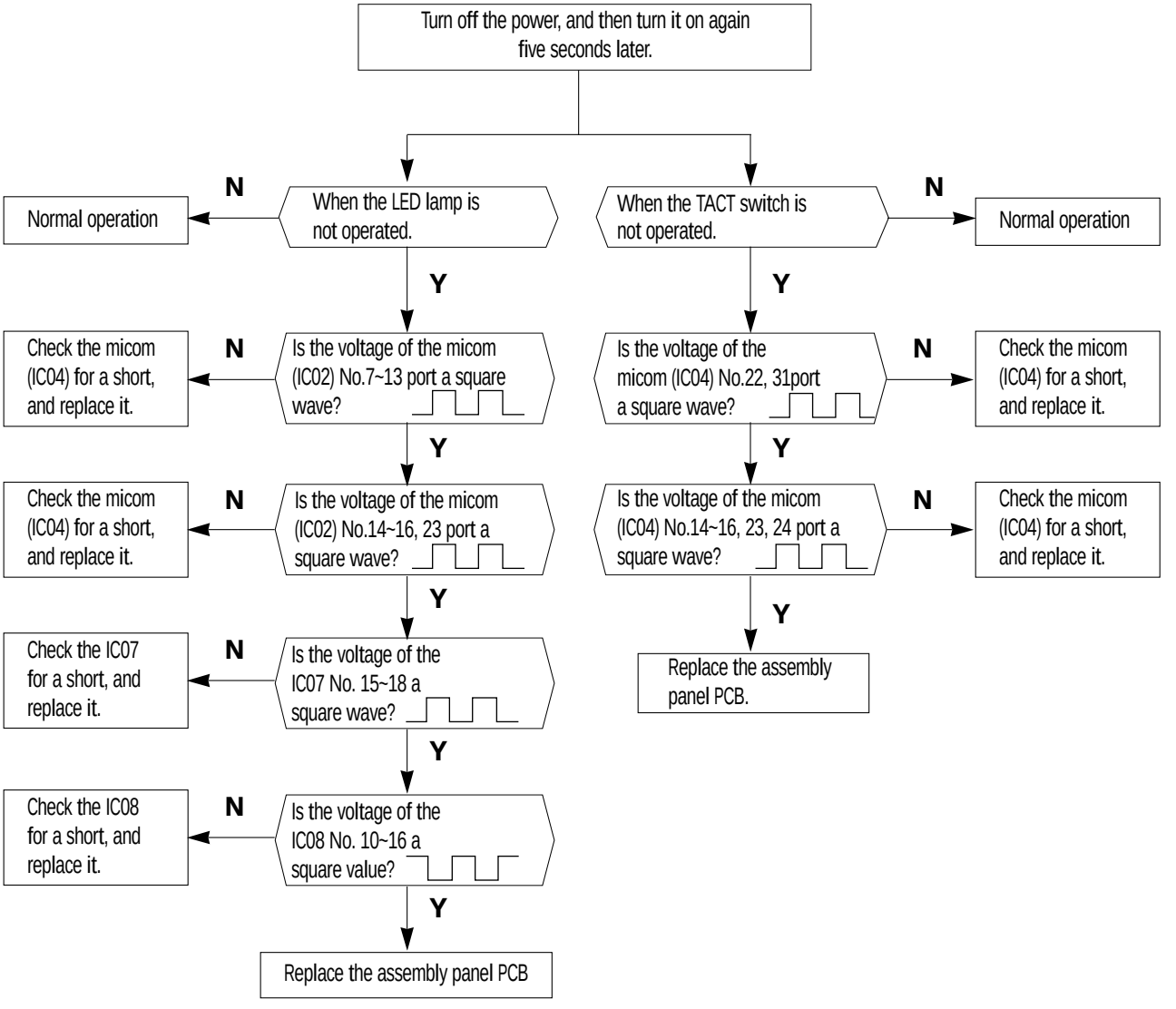
(1) Is the voltage of the power source normal ?
(2) Is the electric wire in good contact ?(CN 71, RY 71)
(3) Is the output voltage of the IC01(KA 7812) normal ?(DC 11.5V ~ DC 12.5V)
(4) Is the output voltage of the IC02(KA 7805) normal ?(DC 4.5V ~ DC 5.5V)
(5) Is the connection of the assembly main PCB, and assembly panel PCB in good contact?(CN91, CN92)


Turn off the power, and then turn it on again five seconds later.
Dose the buzzer sound, when the power on?
Y
Normal operation.
N
Check whether the "COOL" LED lamp is on, and the operation starts when pressing the ON/OFF button of the remocon.
Y
Normal operation.
N
Is the F01(3.15A) fuse blown?
Y
Replace the fuse.
N
Is the primary voltage of the trans(TN71) normal?
N
Check the power cord and electric wire.
Y
Is the secondary voltage of the trans(TN71) normal? (AC 13V ~ AC 17V)
N
Check and replace the trans(TN71).
Y
Is the rectifying diode(D101~D106) normal?
N
• Check the D101 ~ D106 for cold soldering.
• Replace the diode
Y
- Is the voltage of DC 17V ~ DC 23V applied at both ends of the C102 electrolytic condenser?
- Is the voltage of DC 12V applied at both ends of the C104 electrolytic condenser?
- Is the voltage of DC 5V applied at both ends of the C105 electrolytic condenser?
N
• Check both ends of the C102 for short and cold soldering.
• Check the +12V for a short.
• Check the +5V for a short.
• Check and replace the C102, C104, and C105.
Y
Are the IC01(KA7812) and IC02(KA7805) normal?
N
• Check the IC01, and IC02 for cold soldering and a short.
• Replace the IC01, and IC02.
Y
Replace the assembly main PCB.

5-2-2 When the assembly panel PCB is not operated

1) Check points

(1) Is the voltage of the power source normal ?
(2) Is the electric wire in good contact ?(CN71, RY71)
(3) Is the connection of the assembly main PCB, and assembly panel PCB in good contact? (CN91, CN92)
(4) Is the voltage of +12V normal ?(CN 91 No 1 pin and No 4 pin : +12V±0.5V)
(5) Is the voltage of +5V normal ?(CN91 No 2 pin and No 4 pin : +5V±0.5V)

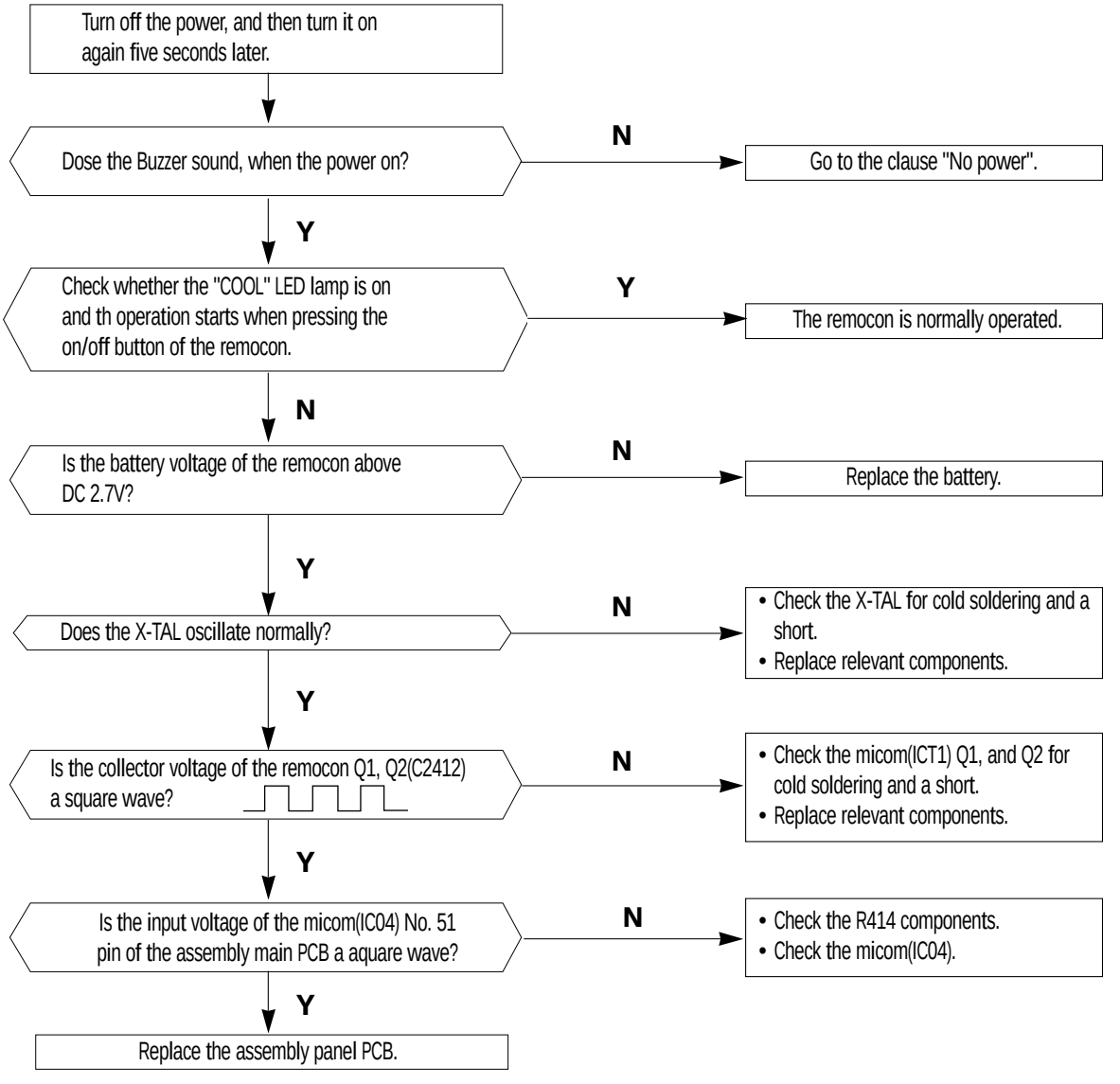

Turn off the power, and then turn it on again five seconds later.
When the LED lamp is not operated.
N
Normal operation
Y
Is the voltage of the micom (IC02) No.7~13 port a square wave?
N
Check the micom (IC04) for a short, and replace it.
Y
Is the voltage of the micom (IC02) No.14~16, 23 port a square wave?
N
Check the micom (IC04) for a short, and replace it.
Y
Is the voltage of the IC07 No. 15~18 a square wave?
N
Check the IC07 for a short, and replace it.
Y
Is the voltage of the IC08 No. 10~16 a square value?
N
Check the IC08 for a short, and replace it.
Y
Replace the assembly panel PCB
When the TACT switch is not operated.
N
Normal operation
Y
Is the voltage of the micom (IC04) No.22, 31port a square wave?
N
Check the micom (IC04) for a short, and replace it.
Y
Is the voltage of the micom (IC04) No.14~16, 23, 24 port a square wave?
N
Check the micom (IC04) for a short, and replace it.
Y
Replace the assembly panel PCB.

* IC04 : Assembly main PCB part.
* IC07, IC08 : Assembly panel PCB part.

5-2-3 When the remocon is not operated

1) Check points

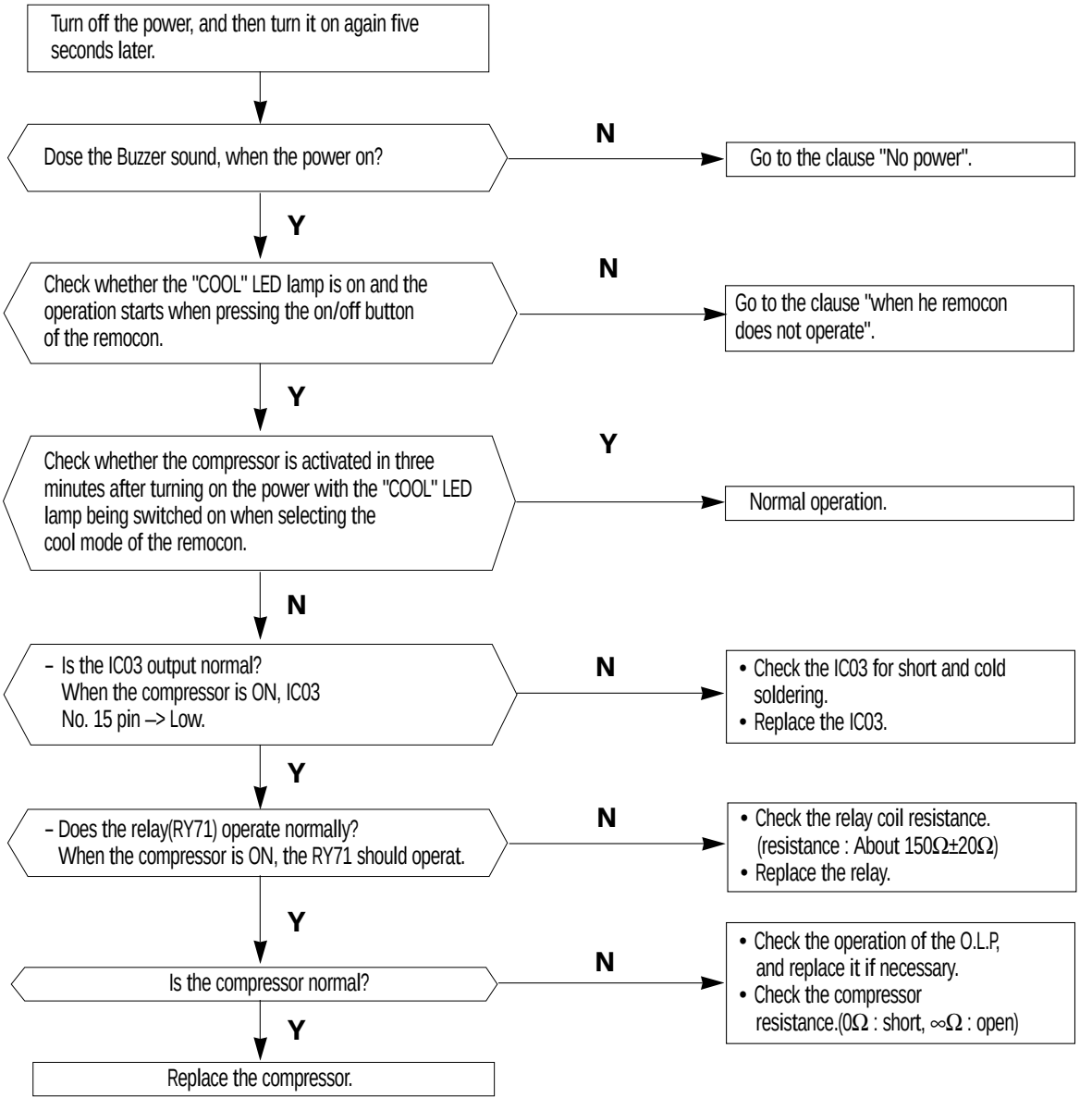
(1) Is the voltage of the power source normal ?
(2) Is the electric wire in good contact ? (CN71, RY71)
(3) Is the assembly main PCB in good contact with the assembly panel PCB?(CN91, CN92)
(4) Is the voltage of +12V and +5V of the assembly panel PCB normal?
(CN91 No 1 pin and No 4 pin : +12V, No 2 pin and No 4 pin : +5V)
(5) Is the battery vortage of the remocon above DC 2.7V?


Turn off the power, and then turn it on again five seconds later.
Dose the Buzzer sound, when the power on?
N
Go to the clause "No power".
Y
Check whether the "COOL" LED lamp is on and th operation starts when pressing the on/off button of the remocon.
Y
The remocon is normally operated.
N
Is the battery voltage of the remocon above DC 2.7V?
N
Replace the battery.
Y
Does the X-TAL oscillate normally?
N
• Check the X-TAL for cold soldering and a short.
• Replace relevant components.
Y
Is the collector voltage of the remocon Q1, Q2(C2412) a square wave?
N
• Check the micom(ICT1) Q1, and Q2 for cold soldering and a short.
• Replace relevant components.
Y
Is the input voltage of the micom(IC04) No. 51 pin of the assembly main PCB a aquare wave?
N
• Check the R414 components.
• Check the micom(IC04).
Y
Replace the assembly panel PCB.

5-2-4 When the compressor is not operated

1) Check points

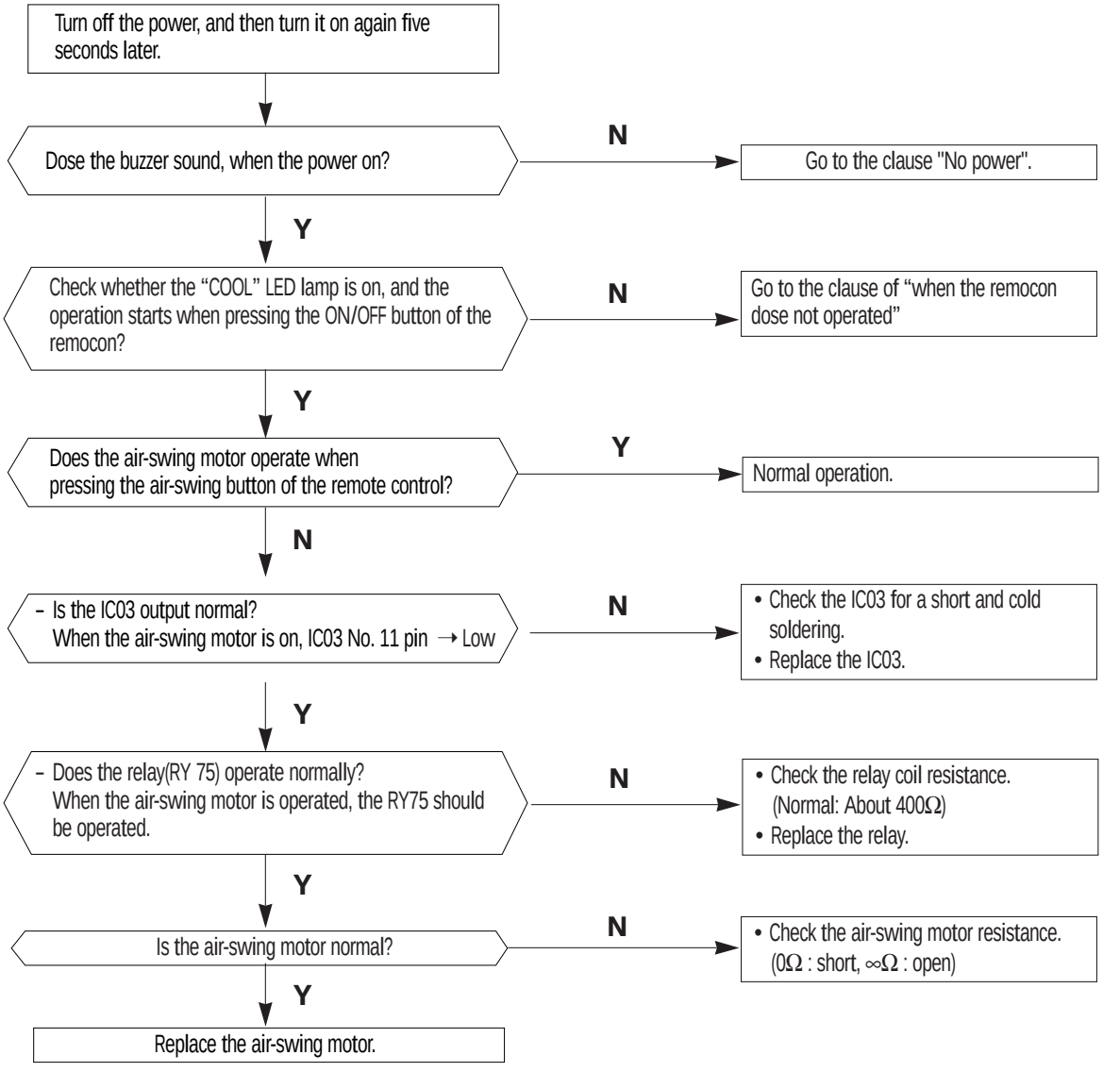
(1) Is the voltage of the power source normal ?
(2) Is the desired temperature lower than the indoor temperature in the “COOL” mode? (Compressor stopped)
(3) Is the starting condenser in good contact?
(4) Is the electric wire in good contact ? (CN71, RY71)
(5) Is the output voltage of the IC01(KA7812) and IC02(KA7805) normal ?


Turn off the power, and then turn it on again five seconds later.
Dose the Buzzer sound, when the power on?
N
Go to the clause "No power".
Y
Check whether the "COOL" LED lamp is on and the operation starts when pressing the on/off button of the remocon.
N
Go to the clause "when he remocon does not operate".
Y
Check whether the compressor is activated in three minutes after turning on the power with the "COOL" LED lamp being switched on when selecting the cool mode of the remocon.
Y
Normal operation.
N
– Is the IC03 output normal? When the compressor is ON, IC03 No. 15 pin –> Low.
N
• Check the IC03 for short and cold soldering.
• Replace the IC03.
Y
– Does the relay(RY71) operate normally? When the compressor is ON, the RY71 should operat.
N
• Check the relay coil resistance. (resistance : About 150Ω±20Ω)
• Replace the relay.
Y
Is the compressor normal?
N
• Check the operation of the O.L.P, and replace it if necessary.
• Check the compressor resistance.(0Ω : short, ∞Ω : open)
Y
Replace the compressor.

5-2-5 When the air swing motor is not operated

1) Check points

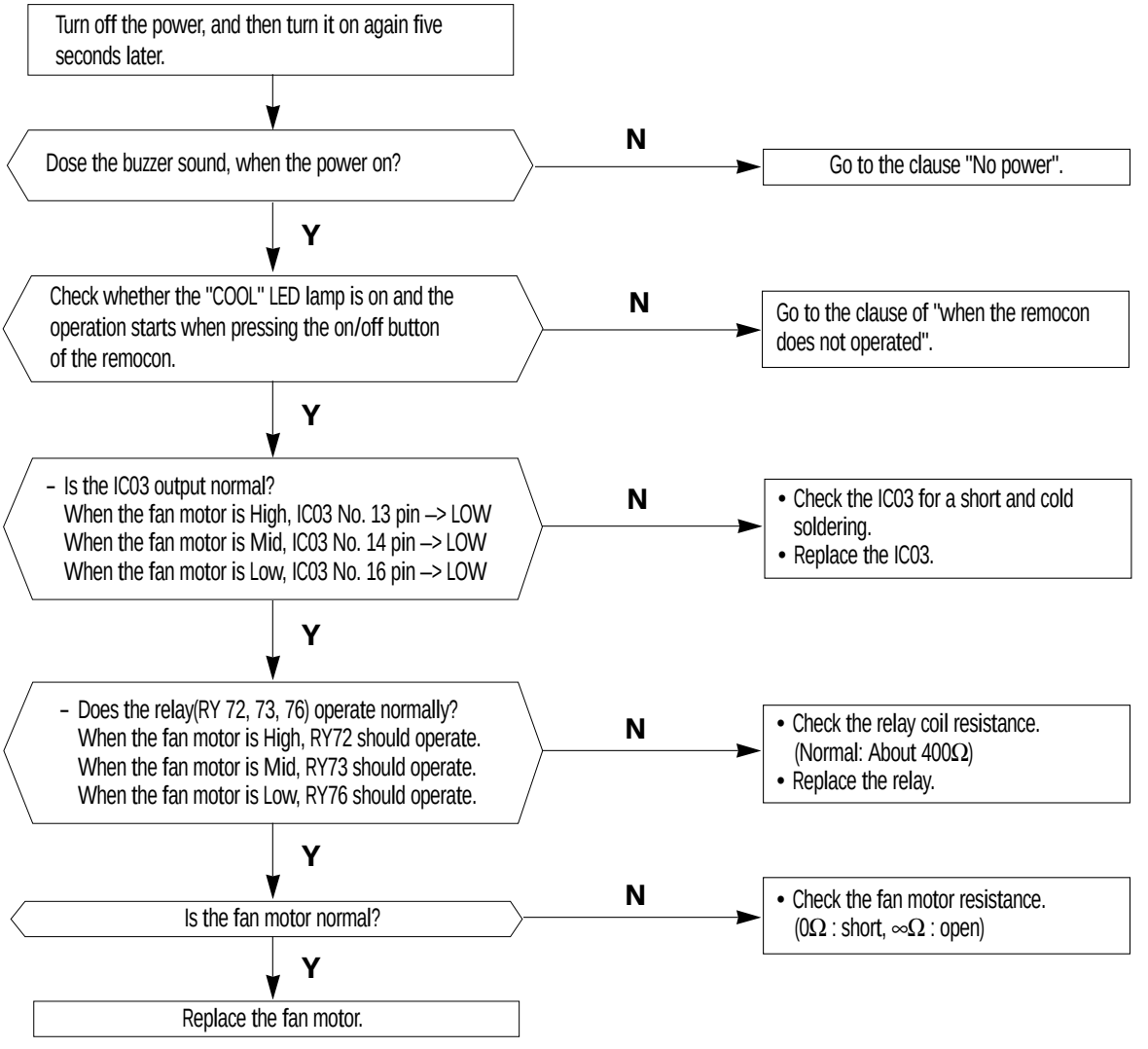
(1) Is the voltage of the power source normal ?
(2) Is the electric wire in good contact ?(CN71, RY71)
(3) Is the swing motor connector in good contact?(CN71)
(4) Is the terminal connected to the swing motor in good contact?
(5) Is the output voltage of the IC01(KA7812) and IC02(KA7805) normal?


Turn off the power, and then turn it on again five seconds later.
Dose the buzzer sound, when the power on?
N
Go to the clause "No power".
Y
Check whether the "COOL" LED lamp is on, and the operation starts when pressing the ON/OFF button of the remocon?
N
Go to the clause of "when the remocon dose not operated"
Y
Does the air-swing motor operate when pressing the air-swing button of the remote control?
Y
Normal operation.
N
– Is the IC03 output normal?
When the air-swing motor is on, IC03 No. 11 pin → Low
N
• Check the IC03 for a short and cold soldering.
• Replace the IC03.
Y
– Does the relay(RY 75) operate normally?
When the air-swing motor is operated, the RY75 should be operated.
N
• Check the relay coil resistance. (Normal: About 400Ω)
• Replace the relay.
Y
Is the air-swing motor normal?
N
• Check the air-swing motor resistance. (0Ω : short, ∞Ω : open)
Y
Replace the air-swing motor.

5-2-6 When the fan motor does not operated

1) Check points

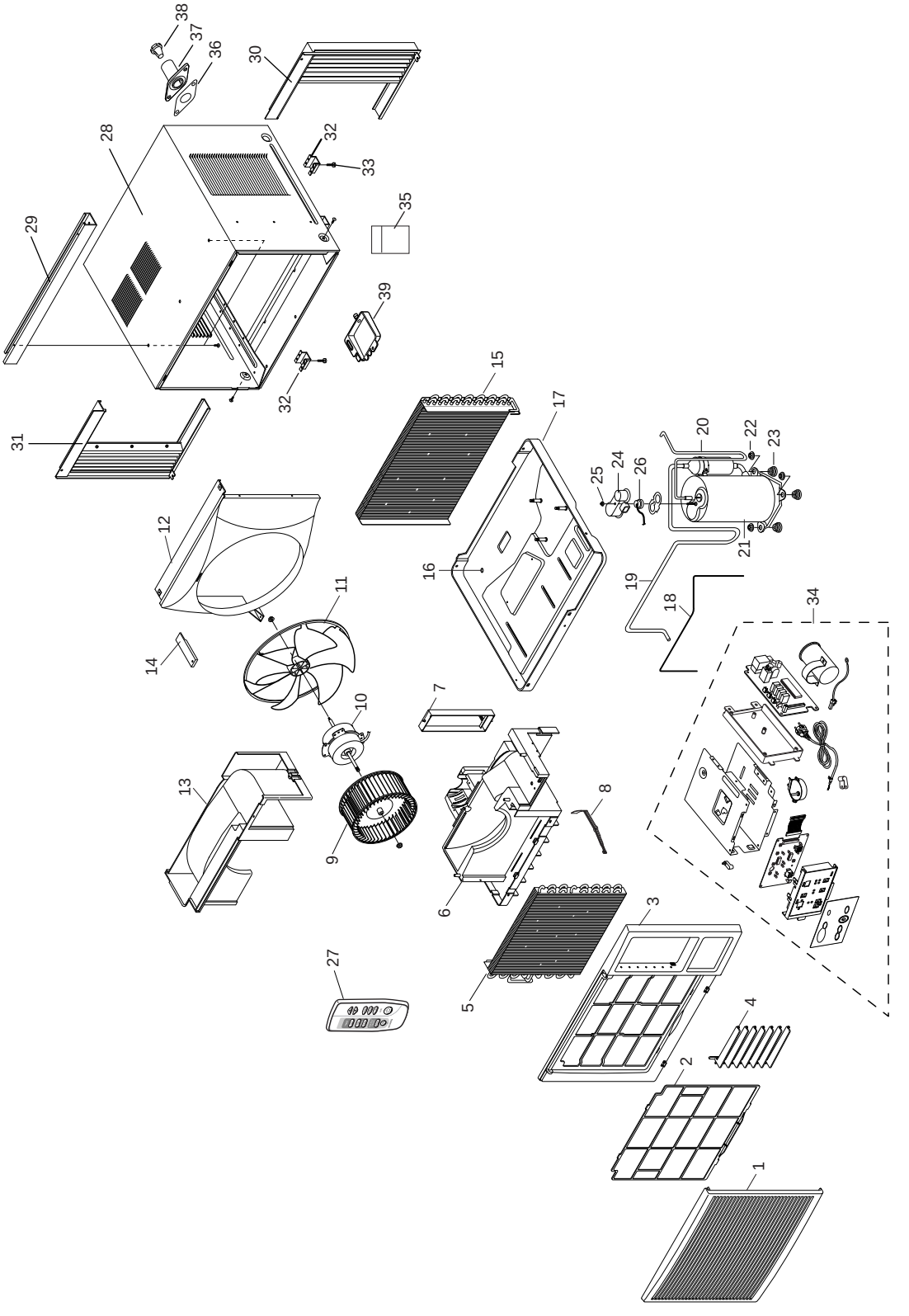
(1) Is the voltage of the power source normal ?
(2) Is the electric wire in good contact ?(CN71, RY71)
(3) Is the starting condenser in good contact?
(4) Is the fan motor connector in good contact?(CN73)
(5) Is the output voltage of the IC01(KA7812) and IC02(KA7805) normal ?


Turn off the power, and then turn it on again five seconds later.
Dose the buzzer sound, when the power on?
N
Go to the clause "No power".
Y
Check whether the "COOL" LED lamp is on and the operation starts when pressing the on/off button of the remocon.
N
Go to the clause of "when the remocon does not operated".
Y
– Is the IC03 output normal?
When the fan motor is High, IC03 No. 13 pin –> LOW
When the fan motor is Mid, IC03 No. 14 pin –> LOW
When the fan motor is Low, IC03 No. 16 pin –> LOW
N
• Check the IC03 for a short and cold soldering.
• Replace the IC03.
Y
– Does the relay(RY 72, 73, 76) operate normally?
When the fan motor is High, RY72 should operate.
When the fan motor is Mid, RY73 should operate.
When the fan motor is Low, RY76 should operate.
N
• Check the relay coil resistance. (Normal: About 400Ω)
• Replace the relay.
Y
Is the fan motor normal?
N
• Check the fan motor resistance. (0Ω : short, ∞Ω : open)
Y
Replace the fan motor.

6. Exploded View and Parts List

6-1 Main unit

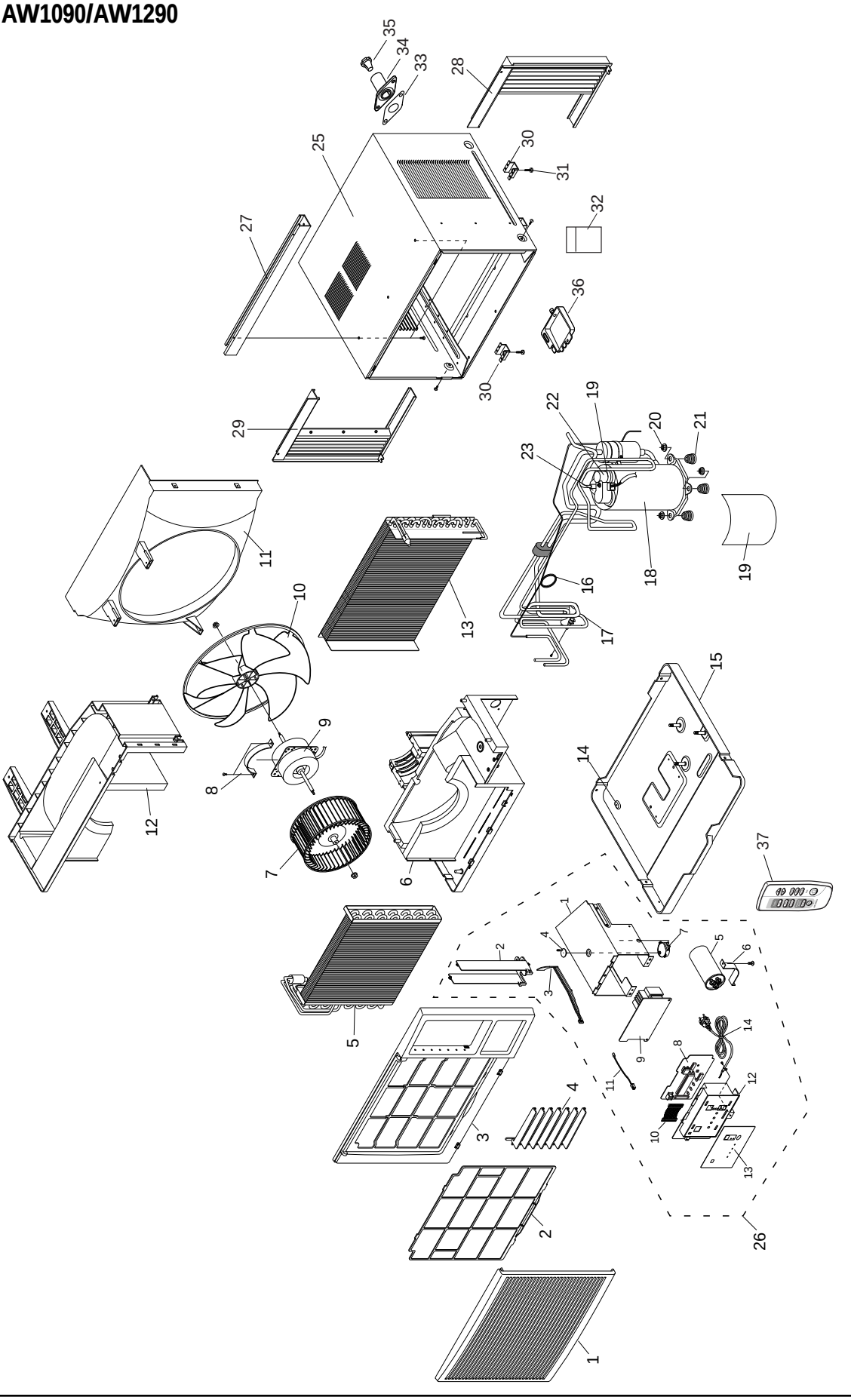
6-1-1. AW0690/AW0790/AW0890



■ Part List

No.	Description	Specification	Q'TY			Remarks
			AW0690	AW0790	AW0890	
1	ASS'Y GRILLE	HIPS	1	1	1	
2	GUARD AIR FILTER	HIPS	1	1	1	
3	PANEL FRONT	HIPS	1	1	1	
4	BLADE-H	PP	1	1	1	
5	ASS'Y EVAP	2 X 14	1	1	-	
	ASS'Y EVAP	3 X 14	-	-	1	
6	ASS'Y FRAME LOW	ASS'Y	1	1	1	
7	BLADE V	HIPS	1	1	1	
8	DAMPER	PP	1	1	1	
9	BLOWER	ABS	1	1	1	
10	MOTOR	IC9630SWD6E	-	1	1	⚠
	MOTOR	IC9630SWD6C	1	-	-	⚠
11	FAN PROPELLER	ABS	1	1	1	
12	CASE COND	PP	1	1	1	
13	FRAME UP	ASS'Y	1	-	1	
	FRAME UP	ASS'Y	-	1	-	
14	FRAME REINF	PP	1	1	1	
15	ASS'Y COND	2 x 15	1	-	-	
	ASS'Y COND	3 x 15	-	1	1	
16	CAP DRAIN	CR	1	1	1	
17	ASS'Y BASE	ASS'Y	1	1	1	
18	TUBE CAPILLATY ASS'Y	ID1.3 L800	-	1	-	⚠
	TUBE CAPILLARY ASS'Y	ID1.3 L1100	1	-	-	⚠
	TUBE CAPILLARY ASS'Y	ID 1.42 L1200	-	-	1	⚠
19	ASS'Y TUBE-SUCTION	ASS'Y	1	1	1	⚠
20	TUBE-DISCHARGE	ASS'Y	-	1	1	⚠
	TUBE-DISCHARGE	ASS'Y	1	-	-	⚠
21	ASS'Y COMP	115V, 60Hz	1	-	-	⚠
	ASS'Y COMP	115V, 60Hz	-	1	-	⚠
	ASS'Y COMP	115V, 60Hz	-	-	1	⚠
22	NUT WASHER	M8, ZPC	3	3	3	
23	GROMMET-ISOLATOR	EPDM	3	3	3	
24	COVER TERMINAL	NORYL, BLK	1	1	1	
25	NUT-FLANGE	M5, SM20C	1	1	1	
26	OLP-POLYESTER	MRA12040-12008	1	-	-	⚠
	OLP-POLYESTER	MRA98706-12008	-	1	-	⚠
	OLP-POLYESTER	MRA12083-12008	-	-	1	⚠
27	ASS'Y REMOCON	ARC 701	1	1	1	
28	ASS'Y CABINET	ASS'Y	1	1	1	
29	SHUTTER ANGLE UP	SC-94445T	1	1	1	
30	ASS'Y SHUTTER RH	ASS'Y	1	1	1	
31	ASS'Y SHUTTER LF	ASS'Y	1	1	1	
32	BRK-INSTALL	SCP, PAINTED	2	2	2	
33	BOLT	M10 x 20(ZPC3)	2	2	2	
34	ASS'Y CONTROL M	AW0690	1	-	-	⚠
	ASS'Y CONTROL M	AW0790	-	1	-	⚠
	ASS'Y CONTROL M	AW0890	-	-	1	⚠
35	ASS'Y ACCESSORY	SCREW SACK	1	1	1	
36	RUBBER-DRAIN	NR	1	1	1	
37	DRAIN-TUBE	PP, BLK	1	1	1	
38	CAP	NR	1	1	1	
39	DRAIN-PAN OUT	PP, BLK	1	1	1	

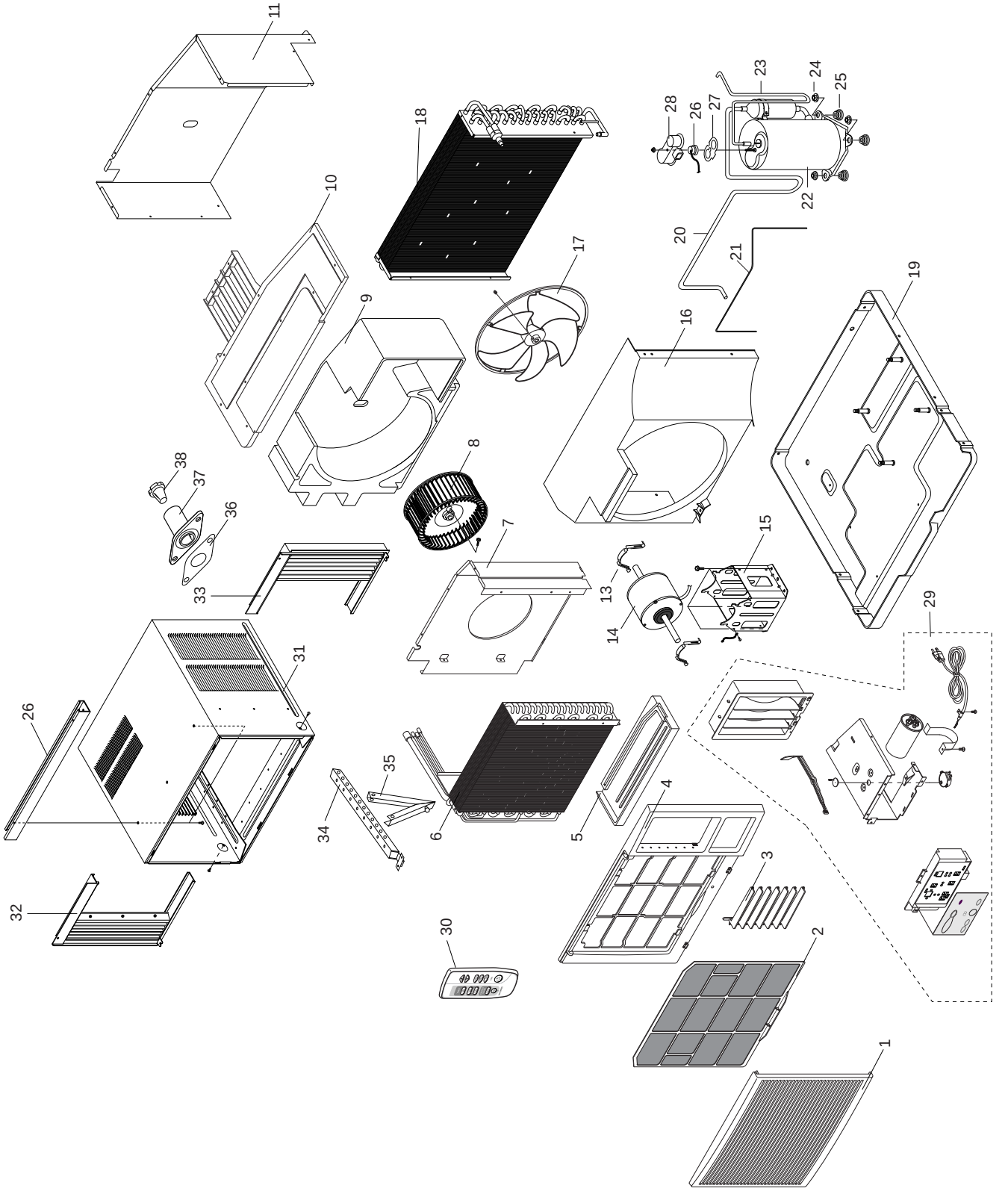
6-1-2. AW1090/AW1290



■ Part List

No.	Description	Specification	Q'TY		Remarks
			AW1090	AW1290	
1	ASS'Y GRILLE	HIPS	1	1	
2	GUARD AIR FILTER	HIPS	1	1	
3	PANEL FRONT	HIPS	1	1	
4	BLADE-H	PP	1	1	
5	ASS'Y EVAP	2 x 14	1	-	
	ASS'Y EVAP	2 x 14	-	1	
6	ASS'Y EVAP	AW1209	-	1	
	ASS'Y FRAME LOW	AW1090	1	-	
7	BLOWER	ABS+G/F	-	1	
	BLOWER	ABS+G/F	1	-	
8	CLIP MOTOR	SECC-P	1	1	
9	MOTOR	AFS090ZREA	1	-	⚠
	MOTOR	AFS100ZREB	-	1	⚠
10	FAN PROPELLER	ABS+G/F	1	1	⚠
11	CASE COND	PP	-	1	
	CASE COND	PP	1	-	
12	ASS'Y FRAME UP	AW1090, AW1290	1	1	
13	ASS'Y COND	3 x 14	-	1	
	ASS'Y COND	3 x 17	1	-	
14	CAP DRAIN	CR	1	1	
15	ASS'Y BASE	ASS'Y	1	1	⚠
16	TUBE CAPILLARY ASS'Y	ID 1.3, L1000	-	1	
	TUBE CAPILLARY ASS'Y	ID 1.2, L750	1	-	
17	ASS'Y TUBE SUCTION	ASS'Y	-	1	⚠
	ASS'Y TUBE SUCTION	ASS'Y	1	-	⚠
18	ASS'Y COMP	ROTARY TYPE	1	-	⚠
	ASS'Y COMP	ROTATY TYPE	-	1	⚠
19	OLP-POLYESTER	MRA98693-12007	-	1	⚠
	OLP-POLYESTER	MRA12109-12007	1	-	⚠
20	NUT WASHER	M8, ZPC	3	3	
21	GROMMET-ISOLATOR	EPDM	3	3	
22	COVER TERMINAL	NORYL, BLK	1	1	
23	NUT-FLANGE	M5, SM20C	1	1	
25	ASS'Y CABINET	ASS'Y	1	1	
26	ASS'Y CONTROL	ASS'Y	1	-	⚠
	ASS'Y CONTROL	ASS'Y	-	1	⚠
27	SHUTTER-ANGLE UP	PVC, T2.5	1	1	
28	ASSY-SHUTTER RH	AW12A6JA, -	1	1	
29	ASSY-SHUTTER LF	AW12A6JA, -	1	1	
30	BRACKET-INSTALL	SGCC-A, T1.6	2	2	
31	BOLT	M10 x 20(ZPC)	2	2	
32	ASS'Y-SCREW	AW12A6JA/CUR, -	1	1	
33	RUBBER-TUBE	NR, -, BLK, -	1	1	
34	ASS'Y-DRAIN TUBE	-, PP BLK	1	1	
35	CAP	-, NR, -, NTR,	1	1	
36	DRAIN-PAN OUT	PP, BLK, -, -	1	1	
37	ASS'Y REMOCON	ARC-701	1	1	

6-1-3. AW1890

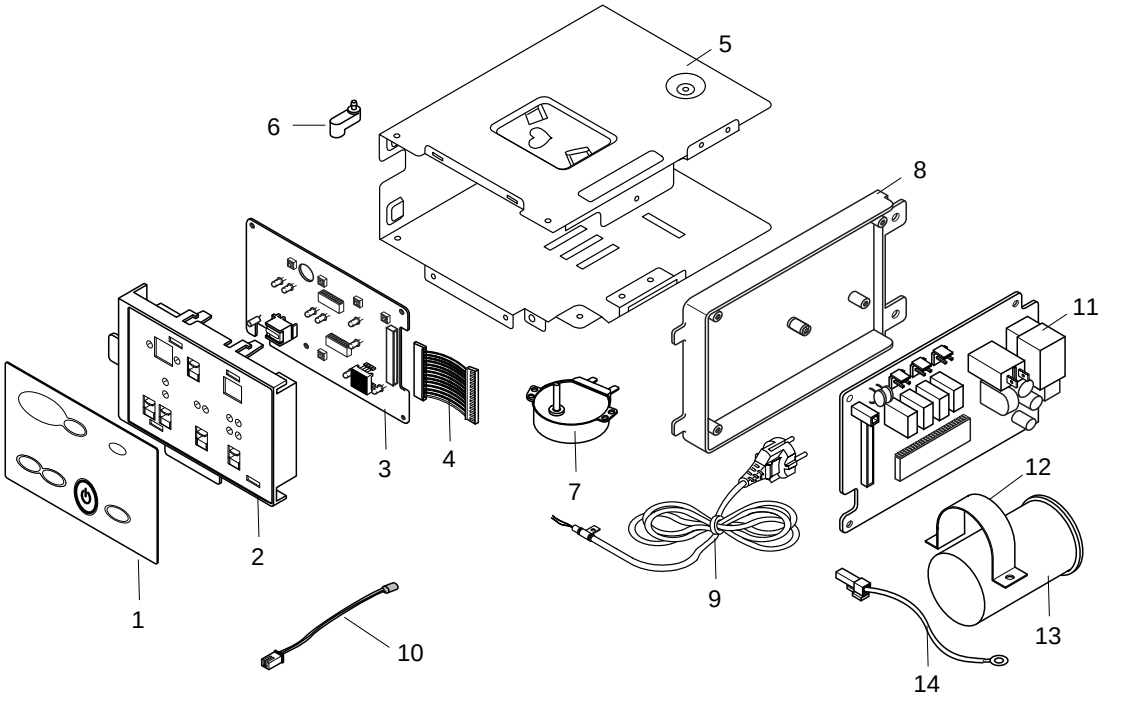

11
18
10
23
24
25
28
26
27
22
20
21
17
9
19
16
8
38
37
36
7
15
33
13
14
29
31
26
35
34
6
5
4
3
32
30
2
1

■ Part List

No		Description	Specification	Q'TY	Remarks
				AW1890	
1		GRILLE	HIPS	1	
2		GUARD AIR FILTER	ABS	1	
3		BLADE-H	PP	1	
4		PANEL FRONT	HIPS	1	
5		TRAY DRAIN	30FOAM-PS	1	
6		ASS'Y EVAP	3 x 15	1	
7		ASS'Y EVAP PLATE CASING	SGCC-M, T0.8	1	
8		ASS'Y BLOWER	ASS'Y	1	
9		CASE EVAP	30FOAM-PS	1	
10		ASS'Y COVER EVAP	ASS'Y, PP	1	
11		PLATE RARTITION	SGCC-M, T0.8	1	
12		ASS'Y CABI	ASS'Y, SECC-P	1	
13		CLIP MOTOR	SK5-CSP	2	
14		MOTOR FAN	AFS140ZTEA	1	
15		SUPPORTER	SGCC-M	1	
16		CASE-COND	SGCC-M	1	
17		FAN PROPELLER	ABS	1	
18		ASS'Y COND	3 x 16	1	
19		ASS'Y BASE	ASS'Y, SECC-P	1	
20		TUBE SUCTION	C1220T-0, OD12.7	1	
21		ASS'Y TUBE CAPILLARY	ID1.2 x L1100	1	
22		ASS'Y COMP	48B175IV1EH	1	
23		TUBE DISCHARGE	C1220T-0	1	
24		NUT WASHER	HEX, 2C, M8	3	
25		GROMMET-ISOLATOR	EPDM	3	
26		OLP	MRA12107-12007	1	
27		GASKET	EPDM	1	
28		COVER TERMINAL	NORYL	1	
29		ASS'Y CONTROL	ASS'Y	1	
30		ASS'Y REMOCON	ARC-701	1	
31		SHUTTER ANGLE UPP	SGCC-A	1	
32		ASS'Y SHUTTER GUARD LF	ASS'Y	1	
33		ASS'Y SHUTTER GUARD RH	ASS'Y	1	
34		INSTALL BRACKET BASE	SGCC-A	2	
35		INSTALL BRACKET MOUNT	SGCC-A	2	
36		RUBBER TUBE	NR, BLK	1	
37		DRAIN TUBE	PP, BLK	1	
38		CAP	NR, NTR	1	

6-2 Ass'y Control

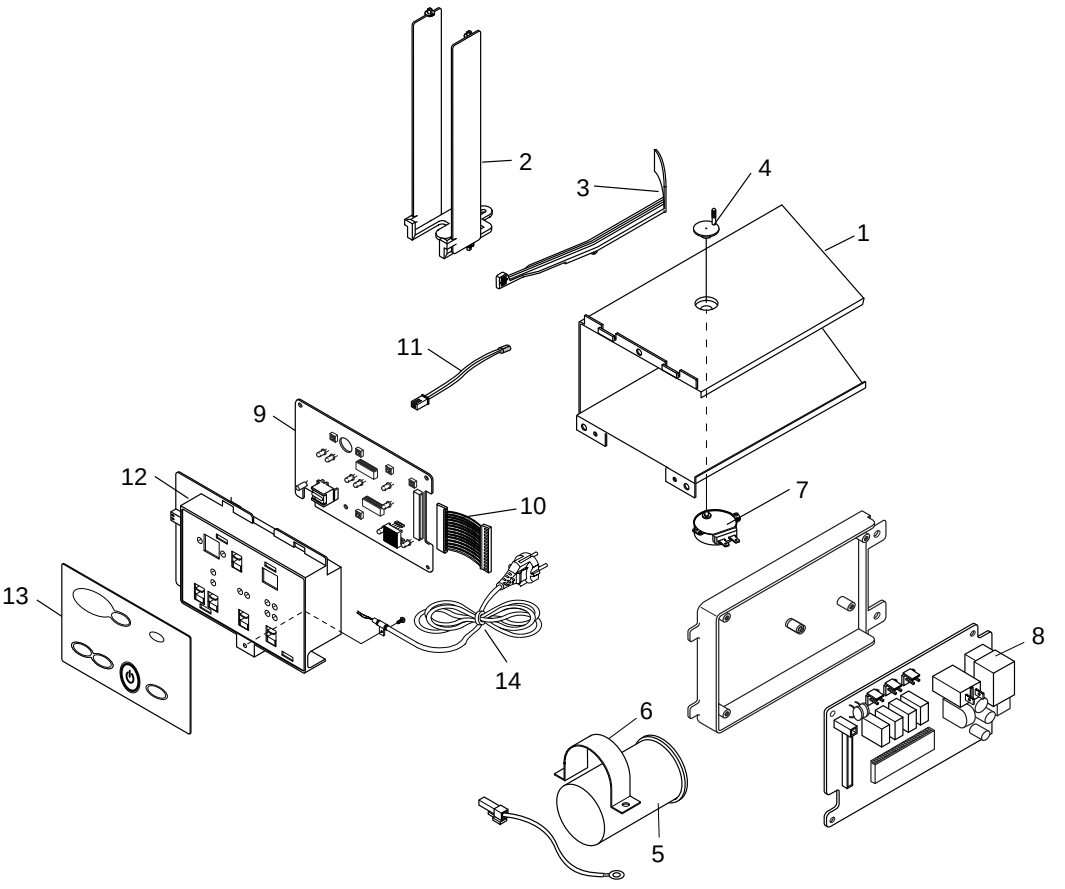
6-2-1. AW0690/AW0790/AW0890



■ Part List

No.		Description	Specification	Q'TY			Remarks
				AW0690	AW0790	AW0890	
0		ASSY-CONTROL	AW0690	-	1	-	▲
0		ASSY-CONTROL	AW0790	1	-	-	▲
0		ASSY-CONTROL	AW0890	-	-	1	▲
1		INLAY-CONTROL	PC	1	1	1	
2		PANEL-CONTROL, E	PS, –, –, –, AW09A0KE, –	1	1	1	
3		ASS'Y-PCB PANEL	ASS'Y	1	1	1	▲
4		CONNECT WIRE-DISPL	AWG26/18	1	1	1	
5		CASE-CONTROL, E	SGCC-M	1	1	1	
6		ARM BLADE	ABS	1	1	1	
7		ASS'Y-MOTOR SWING	M2CK59ZT19-H	1	1	1	
8		COVER-PCB	PS, T2	1	1	1	
9		POWER CORD	13A, 125V	1	1	1	
10		THERMISTOR	103AT	1	1	1	
11		ASS'Y-PCB MAIN	ASS'Y	1	1	1	▲
11-1		ASS'Y-PCB MAIN	ASS'Y	-	-	1	▲
12		CLIP, CAPACITOR	SGCC - M	1	1		
13		C-OIL	25/5µF, 370V	-	1	-	▲
		C-OIL	30/5µF, 370V	1	-	-	▲
		C-OIL	35/6µF, 370V	-	-	1	▲
14		C/TOR WIRE	ASS'Y	1	1	1	

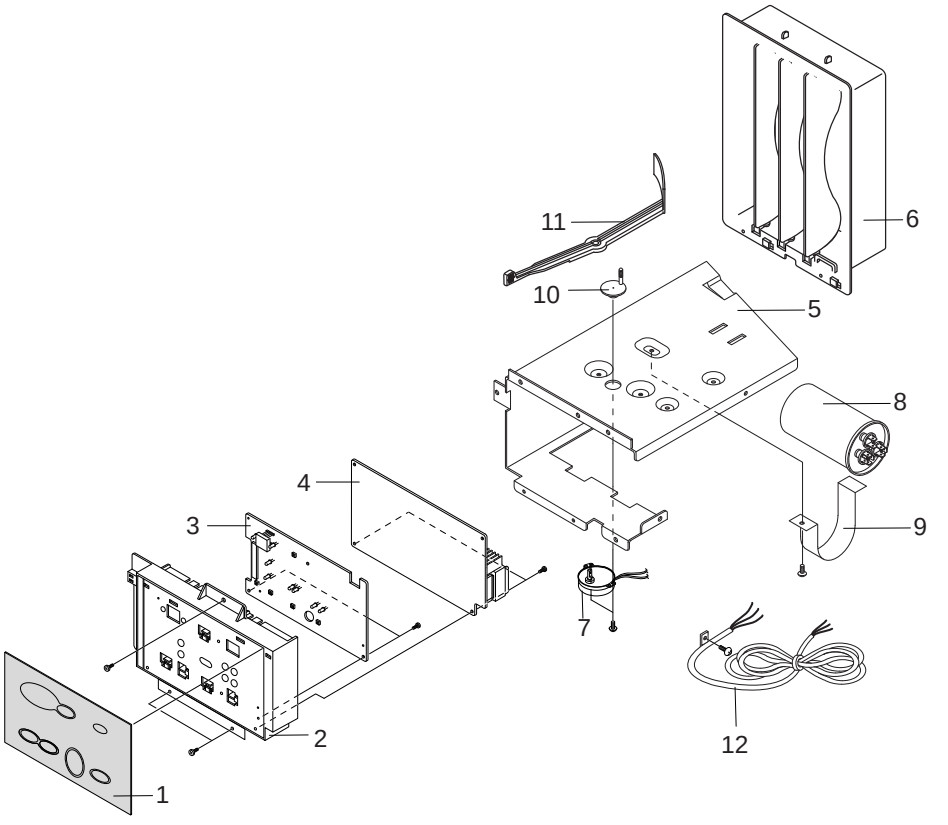
6-2-2. AW1090/AW1290



■ Part List

No.		Description	Specification	Q'TY		Remarks
				AW1090	AW1290	
0		ASS'Y CONTROL	AW1090	1	-	
0		ASS'Y CONTROL	AW1290	-	1	
1		CASE CONTROL	SECC-P, T0.8	1	1	
2		BLADE-V	PP	1	1	
3		LEVER DAMPER	HIPS	1	1	
4		ARM-BLADE	ABS	1	1	
5		C-OIL	40/15uF, 370VAC	1	1	
6		CLIP-CAPACITOR	SECC-P, T0.8	1	1	
7		SWING MOTOR	M2CK59ZT19	1		
8		ASS'Y MAIN PCB	AW12A8JB	1	1	
8-1		ASS'Y MAIN PCB	ASS'Y	-	1	▲
9		ASS'Y PANEL PCB	ASS'Y	1	1	
10		C/W DISPLAY	AWG 26/18	1	1	
11		THERMISTOR	103AT	1	1	
12		PANEL-CONTROL E	HIPS	1		
13		INLAY-CONTROL E	PC	1		
14		POWER CORD	13A, 125V	1	-	
		POWER CORD	15A, 125V	-	1	

6-2-3. AW1890

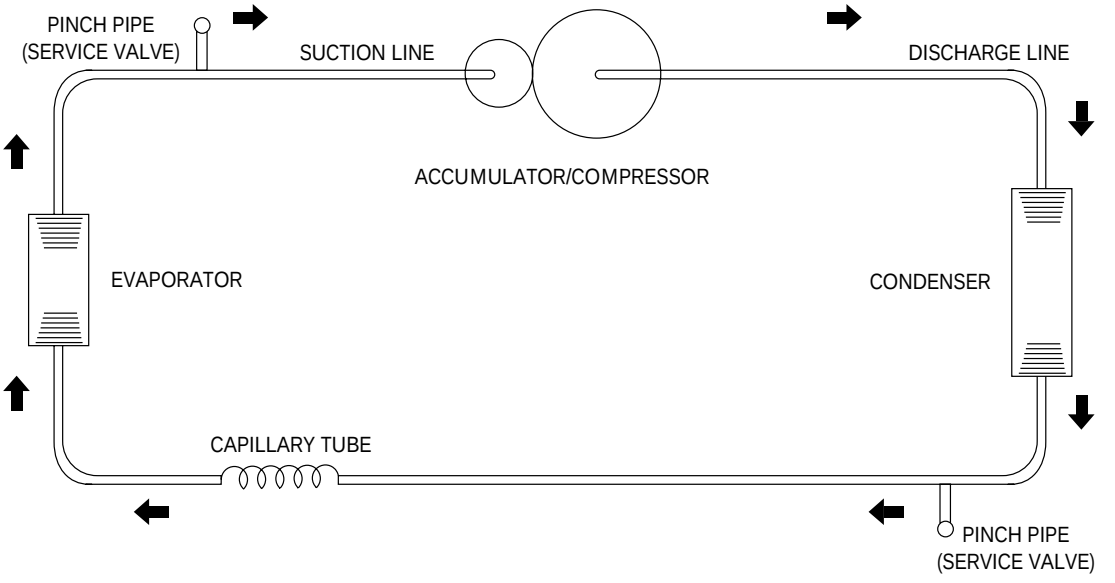


■ Part List

No		Description	Specification	Q'TY	Remarks
				AW1890	
0		ASS'Y CONTROL	ASS'Y	1	
1		INLAY CONTROL	PC	1	
2		PANEL CONTROL E	HIPS	1	
3		ASSY PANEL PCB	ASS'Y	1	
4		ASSY MAIN PCB	ASS'Y	1	
5		CASE CONTROL	SGCC-M	1	
6		ASSY FRAME BLADE	ASSY	1	
7		ASSY MOTOR SWING	M2LJ49ZU32	1	
8		C OIL	35/6μF, 450VAC	1	
9		CLIP CAPACITOR	SGCC-M	1	
10		ARM BLADE	POM	1	
11		LEVER DAMPER	HIPS	1	
12		POWER CORD	15A, 250V	1	

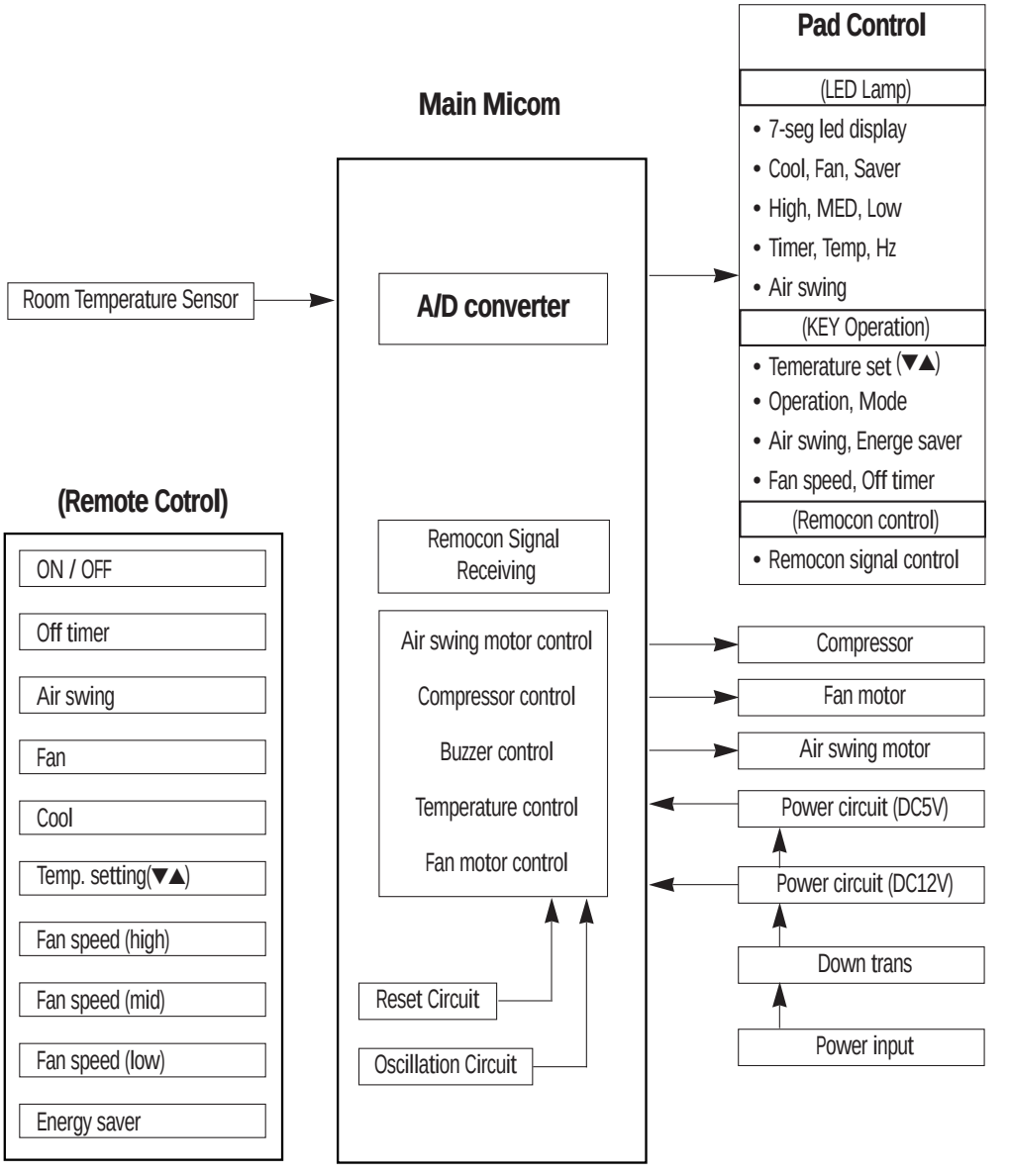
7. Block Diagram

7-1 Refrigerating Cycle Block Diagram



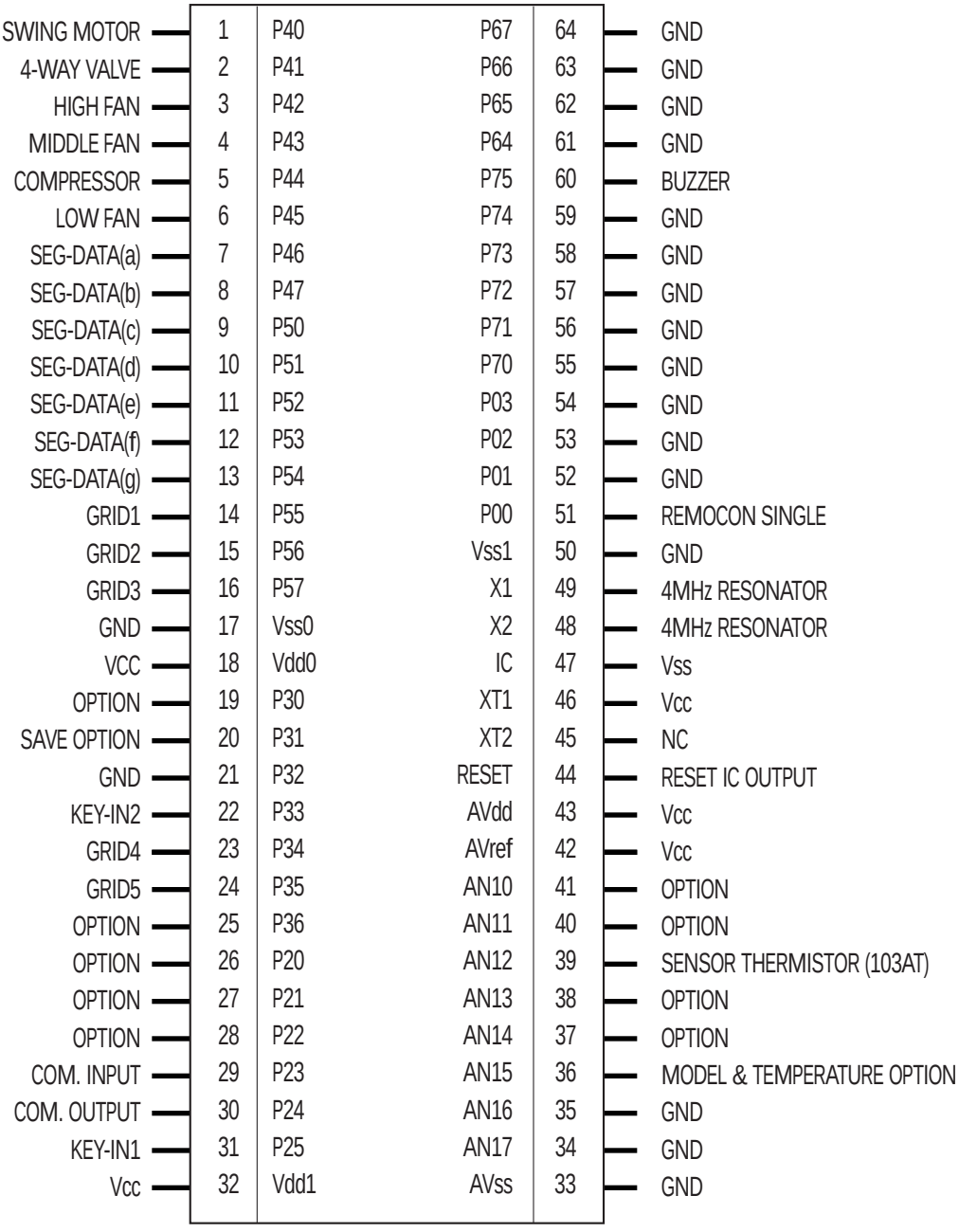
7-2 Basic Structure

7-2-1 Micom Control Diagram



7-2-2 Micom Pin Assignment

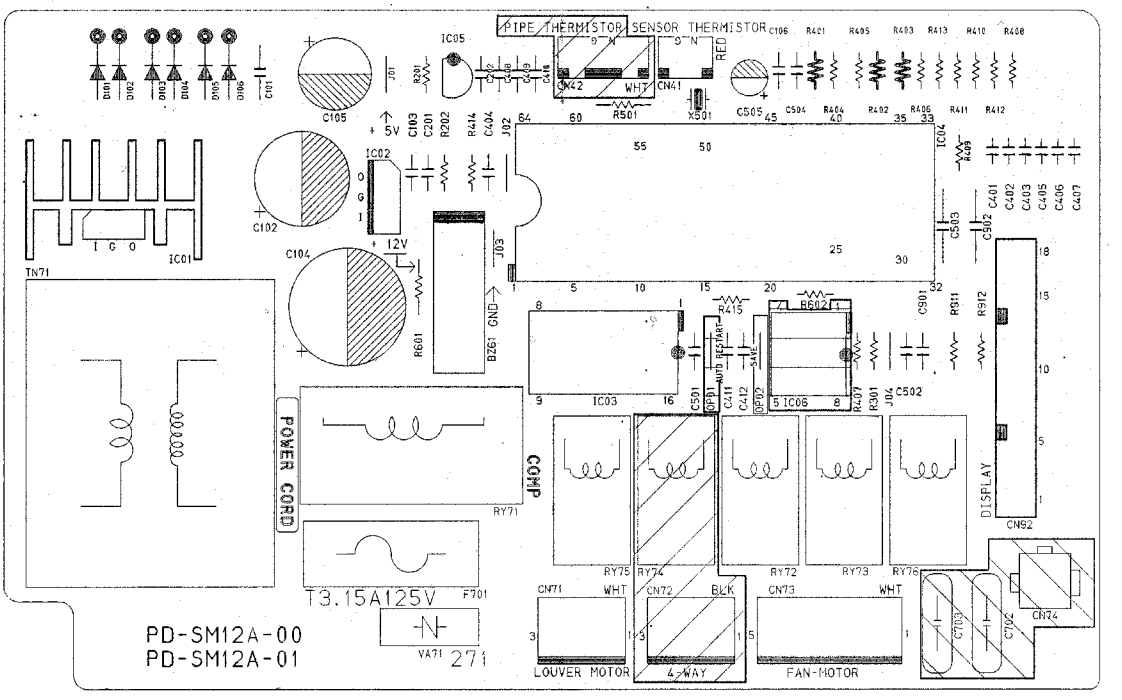
μPD780022CW



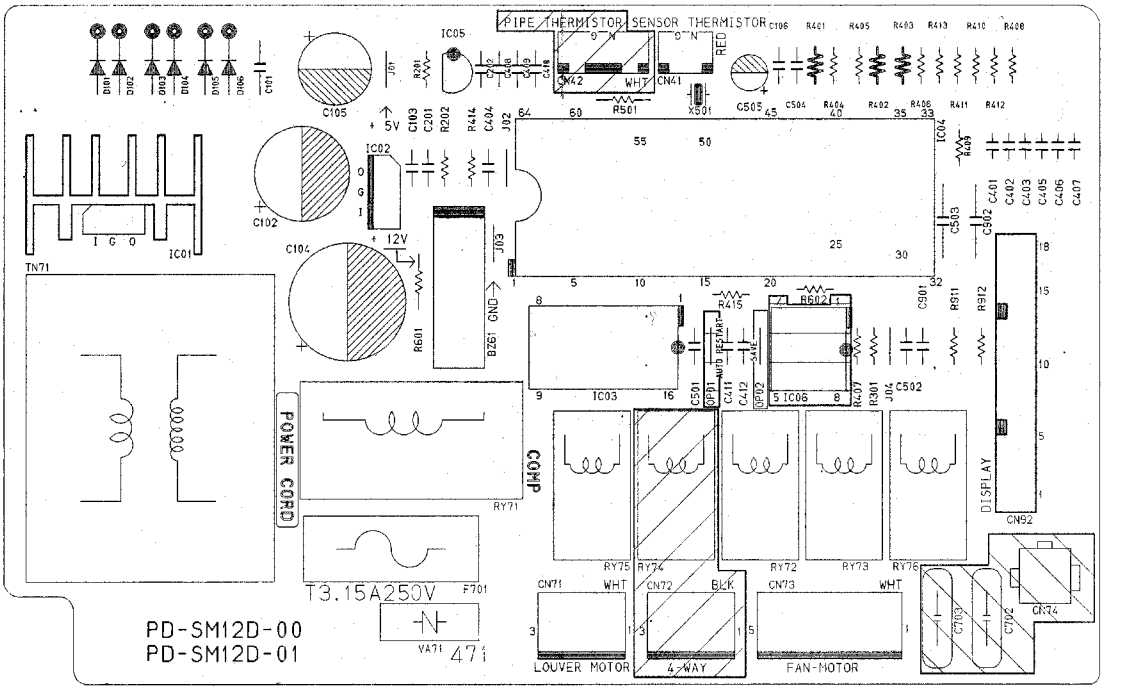
8. PCB Diagram

8-1 Ass'y Main PCB

- **PD-SM12A-00 / PD-SM12A-01 / PD-SM12A-02 / PD-SM12A-03**



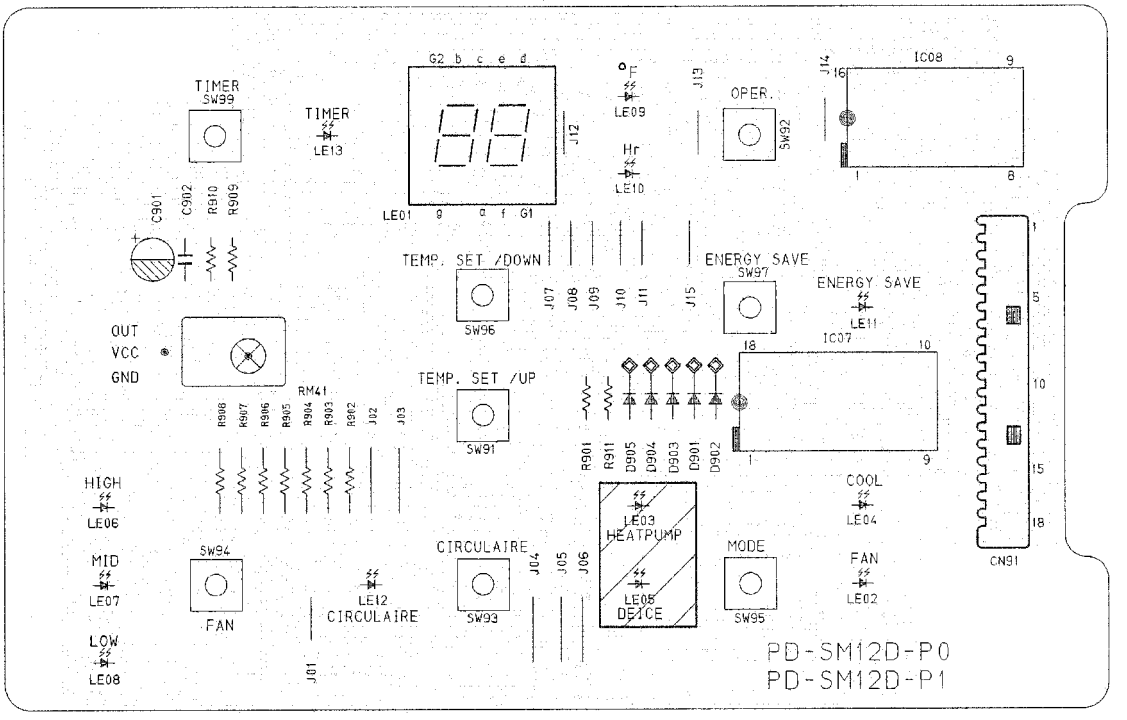
- **PD-SM12D-00**



■ Part List (PD-SM12A-00 : A / PD-SM12A-01 : B / PD-SM12A-02 : C / PD-SM12A-03 : D / PD-SM12D-00 : E)

No.	Description	Specification	Q'TY					Remarks
			A	B	C	D	E	
1	DIODE-RECTIFIER	IN4007, 1000V	6	6	6	6	6	D101~D106
2	VARISTOR	470V, 4500A, 17x12	-	-	-	-	1	VA71
2-1	VARISTOR	270V, 4500A	1	1	1	1	-	VA71
3	R-CARBON	330 OHM, 5%, 1/8W	4	4	4	4	4	R404~R406, R414
4	R-CARBON	100 OHM, 5%, 1/2W	1	1	1	1	1	R501
5	R-CARBON	100K OHM, 5%, 1/8W	1	1	1	1	1	R412
6	R-CARBON	10K OHM, 5%, 1/8W	7	7	8	8	7	R301, R407, R408, R409, R410, R411, R413, R415
6-1	R-CARBON	4.7K OHM, 5%, 1/8W	1	1	-	-	1	R409
7	R-CARBON	1K OHM, 5%, 1/8W	4	4	4	4	4	R201, R202, R911, R912
8	R-CARBON	3.3K OHM, 5%, 1/8W	1	1	1	1	1	R602
9	R-CARBON(S)	620 OHM, 5%, 1/2W	1	1	1	1	1	R601
11	R-METAL	10K OHM, 1%, 1/8W	2	2	2	2	2	R401, R402
12	R-METAL	6.8K OHM, 1%, 1/8W	1	1	1	1	1	R403
13	C-CERAMIC, MLC-AXIAL	100pF, 5%, 50V	1	1	1	1	1	C404
14	C-CERAMIC, MLC-AXIAL	100nF, 5%, 50V	22	22	22	22	22	C101, C103, C106, C201, C202, C401~C403, C405~C412, C501~C504, C901, C902
15	C-AL	1000µF, 5%, 50V	1	1	1	1	1	C102
16	C-AL	470µF, 20%, 25V	1	1	1	1	1	C105
17	C-AL	3300µF, 20%, 25V	1	1	1	1	1	C104
18	C-AL	47µF, 20%, 16V	1	1	1	1	1	C505
19	RESONATOR-CERAMIC	4MHz (MURATA)	1	1	1	1	1	X501
20	RELAY-POWER	DI1U, 12V	1	1	1	1	1	RY71
21	RELAY-MINIATURE	JQ1A, 12V	4	4	4	4	4	RY72, RY73, RY75, RY76
22	CONNECTOR-HEADER	YW396-03AV WHT	1	1	1	1	1	CN71
23	CONNECTOR-HEADER	SMW 250-02 RED	1	1	1	1	1	CN41
24	CONNECTOR-HEADER	YW396-05AV WHT	1	1	1	1	1	CN73
25	CONNECTOR-HEADER	BOX 18P 1R	1	1	1	1	1	CN92
26	IC-MCU	µPD780022CW-016	1	1	1	1	1	IC04
27	IC-VOLT REGU	KA7812	1	1	1	1	1	IC01
28	IC	KA7533Z	1	1	1	1	1	IC05
29	IC-VOLT REGU	KA7805	1	1	1	1	1	IC02
30	IC-DRIVE	KID65003AP, KA2657	1	1	1	1	1	IC03
31	TRANS-L.V.T	AC230V, 50Hz	-	-	-	-	1	TN71
31-1	TRANS-V.V.T	AC120V, 60Hz	1	1	1	1	-	TN71
32	PIN-EYELET	ID2.1 0D2.5, L3.0	5	5	5	5	5	TN71
33	FUSE	FST 250V, 3.15A	-	-	-	-	1	F701
33-1	FUSE	FST125V, 3.15A	1	1	1	1	-	F701
34	HOLDER-FUSE	FH-51H 7.5A	1	1	1	1	1	F701
35	P.C.B-MAIN	FR-1 T1.6 W197 L197	1	1	1	1	1	
36	SCREW-TAPPING	PH--3 L6 AB FEFZ	1	1	1	1	1	
37	HEAT SINK	A6063 W23.5 L31(WHT)	1	1	1	1	1	
38	BUZZER	CSB2220BA	1	1	1	1	1	BZ61
39	WIRE-SO COPPER	P10.6 SN 52MM	5	5	5	5	5	J01~J04, OP01
40	C-CERAMIC DESC	102K 400V	-	2	2	-	-	C702, C703
41	CONNECTOR WAFER	YDW 236-01W	-	2	2	-	-	CN74

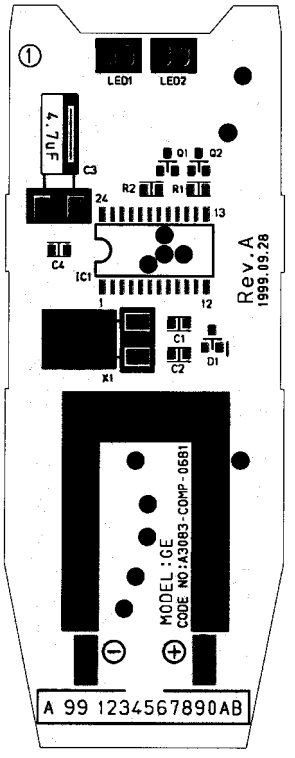
8-2 Display PCB (ASS'Y CODE NO : PD-SM12D-P1)



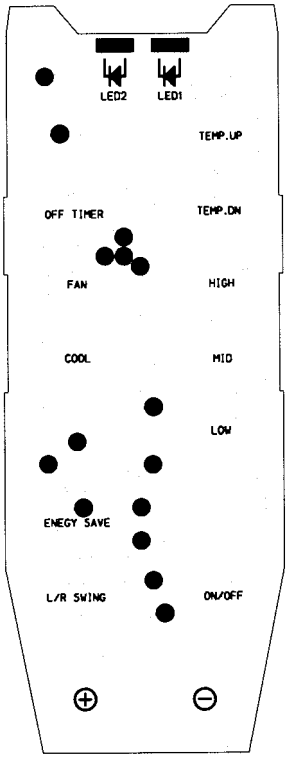
■ Part List

No.	Description		Specification	Q'TY	Remarks
1	DIODE-SWITCHING		1N4148M, 100V	5	D901~905
2	LED		ROUND, GRN, 5mm	10	LE02, LE04, LE06~LE13
3	R-CARBON		330 OHM, 5%, 1/8W	1	R910
4	R-CARBON		1K OHM, 5%, 1/8W	2	R901, R911
5	R-CARBON		10K OHM, 5%, 1/8W	1	R909
6	R-CARBON		470 OHM, 5%, 1/2W	7	R902~R908
7	C-CERAMIC, MLC-AXIAL		1nF, 10%, 50V	1	C902
8	C-AL		1μF, 20%, 50V	1	C901
9	SWITCH-TACT		12V DC, 50mA	8	SW91~SW97, SW99
10	CONNECTOR-HEADER		BOX 18P, 1R	1	CN91
11	DRIVER-IC		KID65783AP	1	IC07
12	LED DISPLAY		SSD-A3202GS-A15	1	LE01
13	IC-DRIVE		KID65003AP	1	IC08
14	WIRE-SO COPPER		PI0.6 SN, T52MM	15	J01~J15
15	P.C.B-PANEL		FR-1, T1.6, W197, L247	1	
16	ELECTRIC UNIT		KSM-313TE5	1	RM41

8-3 ASS'Y PCB-REMOCON



(BOTTOM)



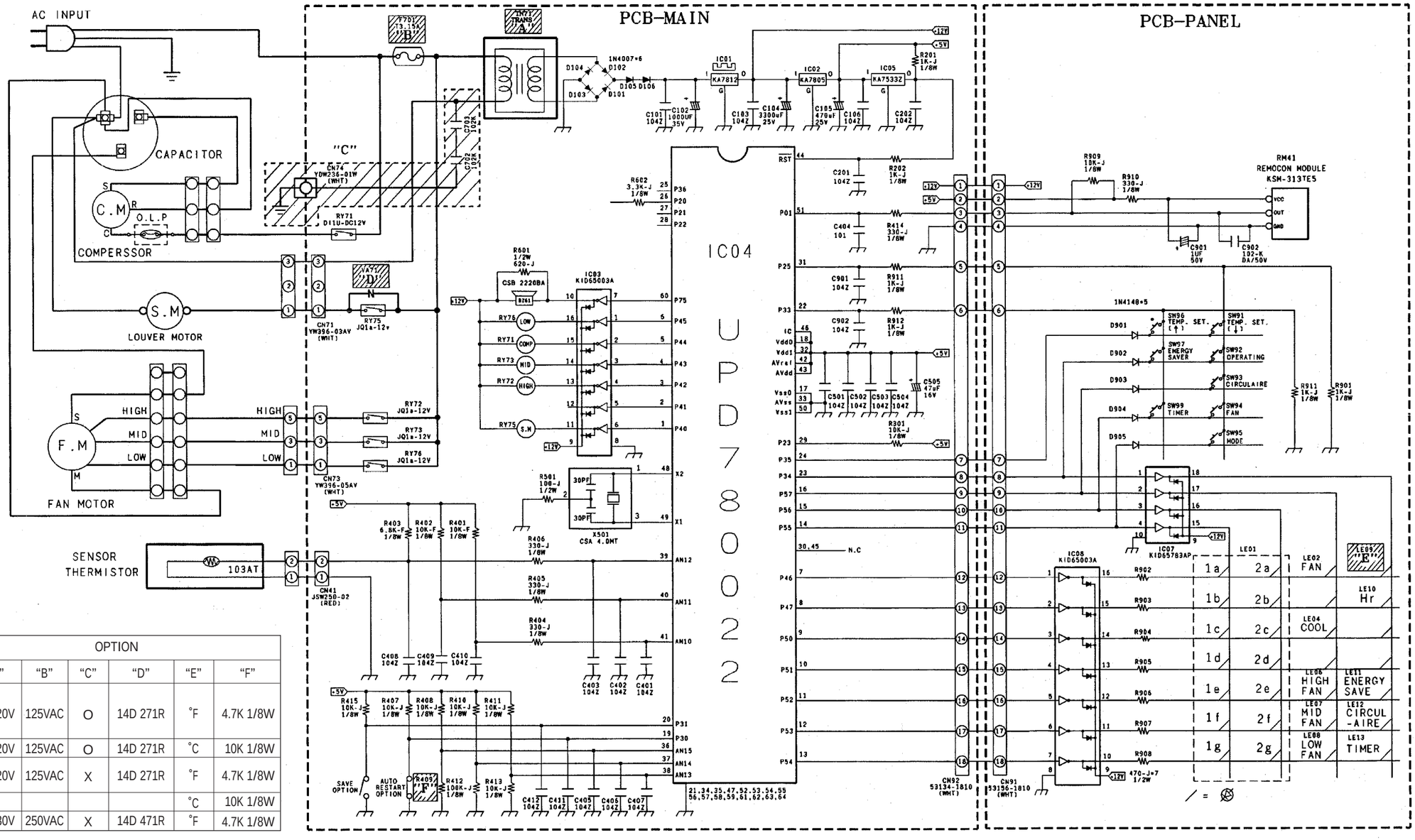
(TOP)

■ Part List

No.	Description		Specification	Q'TY	Remarks
1	PCB		194*122.5*1.6T	1	-
2	RESONATOR		OCR455B1	1	X1
3	C-ELEC		50V 47μF(5*11)	1	C3
4	IR-LED		S15312-H	2	LED 1, 2
5	IC-CHIP		KS51840-39	1	IC1
6	TR-CHIP		2SC2412K	2	Q1, 2
7	D-CHIP		DAP202K, SDS2836	1	D1
8	R-CHIP		1/10 1.0Ω-J	1	R1
9	R-CHIP		1/10 330Ω-J	1	R2
10	C-CHIP		CL21C 101-J	2	C1, C2
11	C-CHIP		CL21C 104-Z	1	C4
12	SPRING(+)		NICO SUS ø0.6	1	+
13	SPRING(–)		NICO SUS ø0.6	1	-

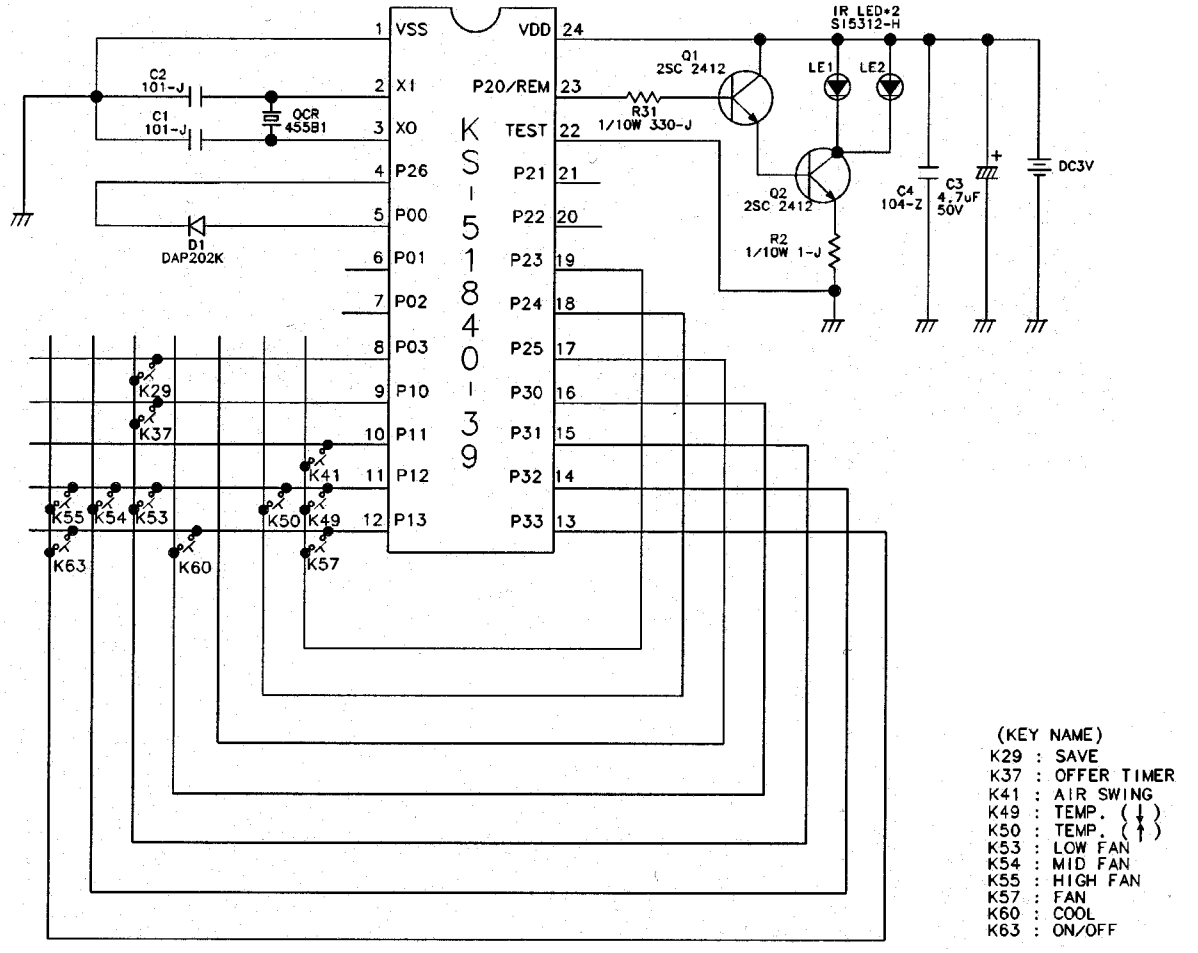
9. Wiring Diagrams

9-1 AW0690/AW0790/AW0890/AW1090/AW1290/AW1890



MODEL	OPTION					
	"A"	"B"	"C"	"D"	"E"	"F"
AW0690 AW0790 AW0890	AC120V	125VAC	O	14D 271R	°F	4.7K 1/8W
AW0890/XAC	AC120V	125VAC	O	14D 271R	°C	10K 1/8W
AW1090 AW1290	AC120V	125VAC	X	14D 271R	°F	4.7K 1/8W
AW1290/XAC					°C	10K 1/8W
AW1890	AC230V	250VAC	X	14D 471R	°F	4.7K 1/8W

9-2 Remote Control



UPDATE LOG SHEET				
Application date	**Page**	**Part#**	**Note(Cause & Solution)**	**S/Bulletin#**

Use this page to keep any special servicing information.(Service Bulletin, etc.)
If only parts number changes, Just change parts number directly on parts list.
And if you need more information, please see the service bulletin

Copyright

© 1995 by Samsung Electronics Co., Ltd.
All rights reserved.
This manual may not, in whole or in part, be copied, photocopied, reproduced, translated, or converted to any electronic or machine readable from without prior written permission of Samsung Electronics Co., Ltd.

SyncMaster 17GLi/CMG7387L Service Manual
First edition June 1995.

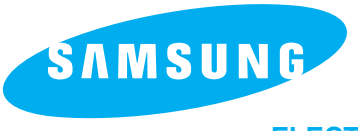
Printed in Korea.

Trademarks

Samsung is a registered trademark and SyncMaster 17GLi/CMG7387L and MacMaster Cable Adapter are trademark of Samsung Electronics Co., Ltd.

Macintosh, Centris, Quadra, Duo Dock, and Power Macintosh are trademark of Apple computer, Inc.

All other trademarks are the property of their respective owners.



ELECTRONICS

© Samsung Electronics Co., Ltd. Apr. 2000.
Printed in Korea.